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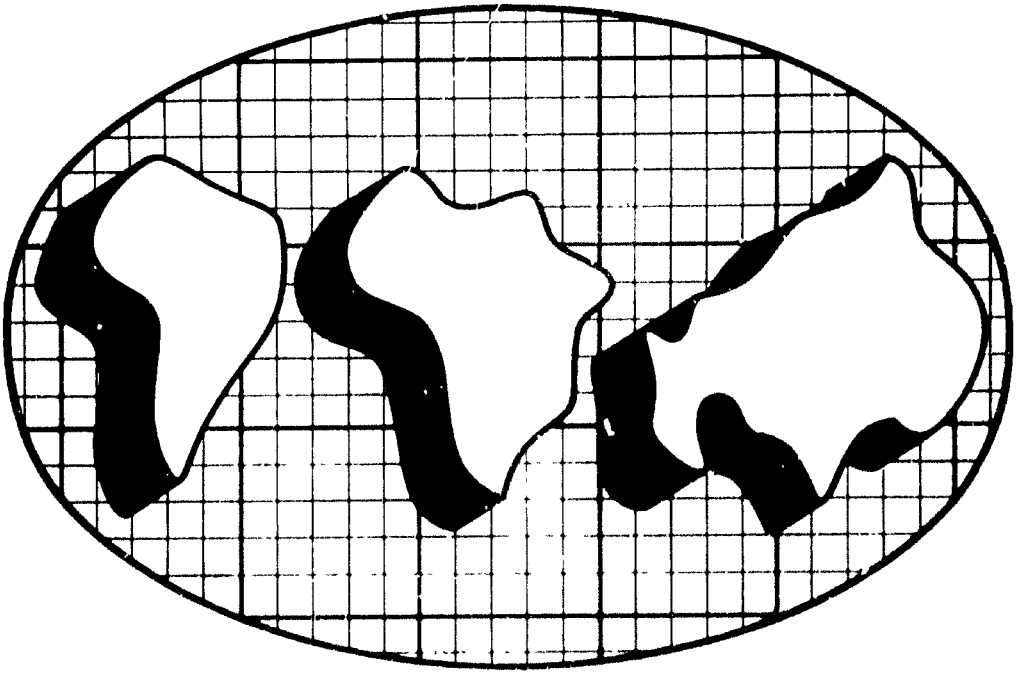
Planning Education for Development:

Volume I
Issues and Problems in the Planning of Education in Developing Countries

RUSSELL G. DAVIS



Center for Studies in Education and Development
Harvard University, Cambridge, Massachusetts

Planning Education For Development

Planning Education For Development

Volumes I-IV

Volume I

Issues and Problems in the Planning of Education in Developing Countries

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1980

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Students in the Planning Program at Harvard Graduate School of Education provided invaluable advice and criticism of the papers and manuscripts. In addition to those who are listed as authors of USAID/Harvard Project papers at the end of Volume IV, it is important to add the names of Cuneyt Ulsever, Jennie Hay, Luis Gonzalez, Debabrata Sen, Bernard Morris, Edi Fracasso, Gil Cho, Florante Parreñas, Linda Sau-Ling Tsang, Grover McDiarmid, Olvin Moreland, Dilafruz Moradian, Lynda Lloyd Da Silva, Josie White Eagle, Jerry Missal, Bette Davis, Joan Harte, Jackie Loo Kay and Wing Woo. At the World Bank, Richard Durstine and Larry Wolff provided valuable advice.

Betsy Dunn directed the major part of the editorial work; Nancy Montalbano, Lisa Duschame, Becky Mikolajczyk, and Maria Urreiztieta supported project administration; and Darcy Marshall and Judy Smith helped prepare the manuscript. Harold Putnam and Margaret O'Hara provided help beyond the requirements of normal duty.

Other contributors have their names either on chapters, books, or project papers. The volumes were created out of separate papers, and the virtue of this is that a variety of viewpoints are represented. The drawback is that there is both diversity and conflict in opinions, and in some cases, overlap and repetition which would have been cut down had each volume been written by one person.

To my mother, Hazel Mae McLellan Davis.

VOLUME I

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Foreword

Educational Planning in Developing Countries

The topic of educational planning in developing countries is presented here in a four-volume set, but additional volumes may be created out of the original corpus of work prepared under the USAID/Harvard Project in Planning Methodologies. The project yielded about eighty separate research reports, academic papers, case studies, and instructional units on methodology. The complete catalogue of these papers is offered at the end of Volume IV. The project ran for four years, 1976-1980. Research reports are based on work in sixteen countries in Latin America, Africa, and Asia, although major project activity centered in seven countries. The bulk of the field work was in Africa and Latin America, rather than Asia. The sponsors and contributors in a project of this scope are legion and they are inadequately and incompletely thanked in the acknowledgments.

Though the four volumes of this set represent a large share of the total output of the project, a great deal of the project work will never see the light of final publication. This unpublished work will include a volume of research studies carried out in El Salvador, and two interesting cases, one on the Botswana Brigades by Murerwa, and one on planning projects in Peru, Thailand, and Turkey by Snyder. Truesdell and Hyde produced computer documentation that was too extensive to publish, Daniere produced two good studies which did not fit into any of the volumes. Most of the 84 papers listed at the end of Volume IV are worth reading if they are relevant to a particular interest.

The field of planning proved too large and amorphous to fit into a neat set of manuals. Even with four volumes, project planning and cost analysis were too briefly treated. Because these topics were dealt with in other projects supported by USAID, the subjects are treated in volumes produced in these projects. These other volumes are referenced in the Foreword to Volume II. They should be used along with this four-volume set to make the treatment of planning more complete.

The original project concept was to develop a set of instructional manuals on the models and methods of rational planning. The material was to be derived from recent professional literature and from the findings of applied research in the developing countries. The original concept was not abandoned but it was overtaken by time and reality and modified accordingly. The modifications reflect certain reservations about the limits of strictly rational planning. Rational planning has come under recent criticism by academics and by practitioners for incomplete models, rigid methods, and pretentions of objectivity, limitations in handling values, ideologies and teleologies, insensitivity to political currents, and incapacity to cope with the social dynamics of human organizations. This criticism might suggest that the models and methods of rational planning should be abandoned. This suggestion was rejected for a number of reasons. First, once the critics get beyond the critique of rational planning they do not have much to put in its place. Second, some models and methods of rational planning do work well enough if those who employ rational planning approaches are aware of the limitations and dangers of blind reliance on the methodology. Third, planners can be made aware of the limits by raising certain basic issues in thematic papers and in case studies.

Thus, the field of planning cannot be adequately covered in a set of how-to-do-it manuals. It is not even appropriate to begin with such manuals, and for this reason the first volume of this set deals with problems and issues Later instructional units will continue to raise issues and problems about the methodology. This may upset readers who seek a crisper and less ambiguous message; but planners must deal with the future, and from the Oracle of Delphi to the weather forecaster for the *Old Farmer's Almanac*, prognosticators have learned not only to live *with* ambiguity, but also to live *on* it; in fact, to thrive on it.

The four volumes are described by these titles; Volume I, *Issues and Problems in the Planning of Education in Developing Countries;* Volume II, *Models and Methods for Systematic Planning of Education;* Volume III, *Research Methods in Educational Planning;* and Volume IV, *Data Analysis for Educational Planning.* First, a more detailed discussion of the content of each of the four volumes will be offered; to be followed by a brief comment on appropriate topics that were not treated in this set of volumes

Volume I: *Issues and Problems in the Planning of Education in Developing Countries*

Volume I deals with issues in education and economic development, and with the problems of planning education in developing countries. This volume was designed with these objectives:

— To review the major issues and problems which are either discussed in the professional literature or raised by educational planning

practitioners in developing countries.

— To offer a brief, general discussion of the 12 major educational planning issues raised in the literature and by practitioners.

— To offer detailed discussion of selected issues. These discussions are offered in Chapter 3 through Chapter 16. Issues are selected for discussion in separate chapters of Volume I, according to the salience of the issue, the seriousness of the problem, the extent to which the issue lends itself to review and discussion, and according to whether or not the issue is discussed in Volume I itself or in one of the other volumes. This last point refers to the fact that some issues are best treated as part of a discussion of methodology in Volume II.

Chapters 3-5 deal with the major bases for systems planning of education, which include social demand, manpower demand, and rate of return. Chapters 6 and 7 deal with comprehensive planning and the use of comprehensive planning models. Chapter 6 is a case study of the planning of the general educational reform in Chile Chapters 8 and 9 present two different explorations of the issue of equity in access to education and equity in educational outcomes. Chapter 8 explores the general conceptual foundation of equality and equity. Chapter 9 examines the distribution of education and the distribution of income, and draws certain equity implications. Chapters 10 and 11 explore the problems of employment, the blending of work with education and training, and the planning of continuing and nonformal education/training programs. Chapter 10 is a comparative review of work-education and employment, with a treatment of the cyclic experience of China in the blending of work and education in a setting of national mobilization Chapter 11 is a case analysis of a project in work-education and training for self-employment in India.

The final five chapters develop material on broad teleological, ideological, and value themes. Chapter 12 explores epistemological and ethical issues in framing national planning goals Chapter 13 examines issues in the practice of participatory planning, mainly in the setting of rural self-help projects Chapter 14 explores systems frameworks for assessing broad social currents and tracing future trends. The systems frameworks of the counter-economists and environmentalists are examined, as is Mannheim's approach to social diagnosis and planning Chapters 15 and 16 are counter-arguments to rational planning, designed to balance the heavy slant toward rational planning in the previous chapters Chapter 15 examines educational research topics from the viewpoint of situational planners, as contrasted to rational planners Both are extreme types, developed for purposes of contrast Chapter 16 critiques rational planning for its shortcomings in handling political forces and organizational dynamics. An alternative model, termed the transactional model, is suggested as a counterbalance for excessive reliance on rational planning.

Volume II: *Models and Methods for Systematic Planning of Education*

Volume II deals with the basic techniques of planning, that is, with the models and methods which are applied in educational systems planning. The volume is organized as a conventional book, but the chapters in many cases are instructional units on methodology. It was designed with these objectives:

— First, to provide a more detailed elaboration of planning issues raised in the first volume. Not all of those planning issues will be covered in Volume II, which focuses on the methodological problems of educational planning. Volume I was designed to explore *why* planners take on certain tasks and *how* they approach these tasks; Volume II is designed to show *what* planners do.

— Second, to provide instruction on how to perform certain of the basic methological tasks in systems planning. The material is designed to instruct people on how to develop models and apply methods in educational planning. The material is not designed merely as a how-to-do-it manual for uneducated beginners, although the material unfolds in simple steps. The learning sequence is not fully programmed for self-instruction The material can be read by any individual who wishes to learn how to apply planning techniques. The material can also be better understood if taught by an instructor or discussion leader. The purely methodological parts can be taught in a programmed manual form, but the issues and problems of rational planning cannot be taught as a pure exercise in logic

— Third, to build a methodological framework for planning that will support elaboration of research methods and data analysis techniques to be developed in the volumes to follow Volume II will cover most of the techniques that are common in educational systems planning. In addition to this planning methodology, the planner must know how to use many of the standard research and data analysis techniques of social science In fact, many of the systems planning techniques cannot be used until research and analysis have first yielded the basic information with which the planner must work

There are four parts to Volume II, and each part has two or more chapters Part One continues the topic of integrated or systems planning, which was raised as an issue in the first volume Chapter 1 introduces the concept of Black Box modeling, which is central in systems analysis and systems planning The chapter concludes with material on simple graphic models of systems and organizations Chapter 2 describes comprehensive systems planning models, discusses the development and application of these models, and covers in nontechnical language the structure of a comprehensive planning model A technical appendix to Chapter 2 describes and explains regression and path analysis models for studying educational effects. Chapter 3 offers a fairly complete and detailed technical treatment of a comprehensive planning model. The equations of the model are

discussed and explained. Computational examples are given in an appendix. Chapter 3 and the Appendix are optional materials and can be skipped if planners wish to go on to more useful planning techniques in Part Two.

Policy planning deals with the near future, in contrast to futurology or perspective planning which deals with the remote, or distant, future. Thus, one of the planner's major technical tasks is to develop, adapt, or apply population projections, enrollment projections, and economic or manpower requirements projections. The first topic of Part Two is demographic analysis and population projection, and Chapter 4 is an instructional unit on these subjects. The second topic in Part Two is enrollment projections. A unit on enrollment projection methods is offered in Chapter 5, and a unit on methods for estimating enrollment flow-rates is presented in Chapter 6. Extrapolation based on curve fitting is used in population and enrollment forecasts and projection, and the last unit in Part Two deals with curve fitting

Part Three presents three instructional units on manpower requirements forecasting methods. The units developed in Chapters 8 and 9 describe a method of manpower forecasting which is called the Basic Method. Chapter 10 has a unit on a second approach, which is called the Alternative Method Two cases are used in Chapter 11 and 12 to illustrate the Basic Method and the Alternative Method The two cases are drawn from actual manpower planning work in developing countries. The theoretical and practical weaknesses of manpower planning have been examined as issues in Volume I There the point was also made that manpower planning is still used and the results are still useful This argument is advanced to justify a substantial amount of instructional material on manpower planning models and methods Clearly, it represents a bias on the part of the main author of Volume II, but it is a bias with some basis in experience.

Part Four presents several short treatments of useful techniques for educational planning The first topic is scheduling and the use of critical path analysis for project planning A second topic, in Chapter 14, is cost-effectiveness, cost-benefits, and cost-efficiency analysis methods applied mainly to project planning The rudiments of present and future value calculations are presented along with the rationale for viewing education as a productive investment The basis of the calculations and the use of present values and compound interest tables is covered The use of compound interest and growth factor tables has been previously covered The topic of present value calculations and cost-benefit comparisons is developed in greater detail in a separate book but a companion piece to this four-volume series, *A Manual for the Analysis of Costs and Outcomes in Nonformal Education* (Princeton, N J.: International Office of the Educational Testing Service, 1979). This project costing manual was planned as part of this project by USAID but produced separately at Educational Testing Service. Also related is the book by D. Jamison, S. Klees, and

S. Wells, *The Costs of Educational Media: Guidelines for Planning and Evaluation,* (Beverly Hills, Cal.: Sage, 1978), which is based in part on research undertaken under a USAID contract.

Chapter 15 on heuristic methods for planning is included as a topic in Part Four. There is no integral connection to the previous topics of scheduling and costing. Chapter 15 covers heuristic model approaches briefly, because there is not very much methodological complexity to these approaches. The technical methodology of the heuristic approach is largely borrowed from general statistics and other applications of models and methods in the social sciences. In Chapter 15, two heuristic methods are described in some detail and contrasted. Delphi, which is quite well known in its three main variants, is compared to COMPASS, a newer method of compact policy assessment developed by Barclay Hudson.

The last section of Volume II moves away from planning techniques applied at the national systems level and deals with problems of area planning and school mapping. In Part Five the topic of school mapping is developed through a general review of the elements of the methodology which are systematic and technical, as well as through a case study of an application of school mapping. Other planning methods could have been featured in Volume II, and some of these methods are developed in the next two volumes or discussed in the project papers that are listed at the end of the final volume.

Volume III: *Research Methods for Educational Planning*

Volume III is a set of instructional packages to be used in training educational planners, policy makers, administrators and researchers in the application of empirical research methods The packages are designed to be used by educational researchers in government agencies, universities, and research centers, and by planners in official government offices and in universities The objectives of the packages are to develop general knowledge of research approaches and methodologies and to develop skills in the application of these methods in research studies designed to yield information that can be used in educational planning

These materials focus on empirical research methods because they are useful in educational planning and because the methodology of empirical research is sufficiently technical and complex to require specialized training for those who would apply it

The materials are organized in quasi-self-instructional form rather than that of the standard textbook One reason for the self-instructional form is that many good textbooks on educational research already exist This is not the case for materials on research methods for educational planning Another reason for self-instructional packages is that the people who are most likely to use the materials are professionals who have the capacity and motivation to manage their own learning activities. The subject to be learned is

technical and can best be communicated in a practical, training format, rather than in an academic textbook form. Finally, the full understanding of research methods requires not only mastering the concepts of research described in textual materials, but also learning the mechanics of research by examining selected case examples of research studies. The learning is further developed and reinforced as an acquired skill by a supervised experience in carrying out the small-scale research task. This latter task cannot be accomplished with a book alone, but instructional packages can help to guide such experience. A training material format permits the incorporation of exercises, cases, and other learning aids, along with standard text material. The organization of the volume is therefore by instructional packages and not by chapters. In this feature it goes a step beyond the materials in the previous volume, some of which were developed as instructional units.

The packages in this volume can be divided into two types, those dealing with the general issues of the objectives, nature, planning, and conduct of research, and those concerned with specific techniques and methods of research. The first four packages deal with the following subjects: the relationship of educational research to educational planning; problem identification and formulation in educational research; guidelines for selecting a research method; and planning and conducting educational research. The remaining six packages deal with technical issues of design and method and include sampling, survey methods, experiments, evaluation, naturalistic inquiry, and cost evaluation techniques. Taken together, the materials in Volume III cover the standard tasks of empirical research designed to provide information for rational planning. There are alternative epistemologies and approaches to research and to educational planning, and some of these were discussed in Chapters 15 and 16 of Volume I.

Volume IV: *Data Analysis for Educational Planning*

Volume IV offers three different types of materials: (1) a series of chapters, instructional in nature, which are designed to teach basic and practical techniques and procedures for the analysis of quantitative educational data; (2) a series of exercises and problem sets which permit the reader to practice the analysis techniques described in the text; and (3) a case study of the use of data analysis within an educational planning office of a Ministry of Education.

Educational planners and other technical people dealing with education comprise the audience to which this volume is addressed. It is assumed, however, that the audience may have little formal training in statistics. It is further assumed that the planner/analyst works in an organizational setting where the following features are important aspects of the work: (1) Decisionmakers and managers need quickly supplied analyses, even if limited in scope, rather than more elaborate

endeavors that take a longer time to prepare. (2) Decisionmakers and managers are concerned with specific problems and are not concerned about generalizing to all possible situations. (3) The planner or analyst must think in terms of the operating system to which the data refer, and the policy instruments available to the decision maker. Simplicity of analysis is important for ease of interpretation and transmission of results, but also because it permits increased local control over the direction and conduct of the analysis. The vast majority of the techniques described in the text can be performed with paper and pencil, although an inexpensive hand-calculator removes much of the drudgery from the work. A chapter-by-chapter summary follows:

Chapter 1: Categories of Analysis Techniques. In this chapter there are three objectives: i) to introduce a schema of analysis techniques, both to identify those techniques which will be discussed in later chapters, and to serve as a guide for the proper selection of a technique for analysis; ii) to define the basic terminology that will be used throughout the text; and iii) to introduce a data set from an actual educational planning situation that will be used throughout the text as problem sets at the end of each chapter.

Chapter 2: Visual Data Displays. In this chapter, simple yet effective techniques for displaying data are described. Such techniques include stem-and-leaf diagrams, histograms, bar graphs, box plots, statistical maps, and simple graphs. The conditions under which a particular technique is appropriate are identified. Numerical summaries, such as medians or means, describing important features of the analysis of single variables are presented. Comparisons of these summaries among groups is discussed, and the usefulness of data transformations during such comparisons is illustrated.

Chapter 3: Tables of Counts. Tables with counts of students, teachers, facilities, etc., are among the most common forms of educational data displays. This chapter discusses a series of techniques which can be used to get useful information from such tables. We may want to know if the tabled variables are associated, and if so, how strongly? Is there directionality to the relationship, and can we determine anything about the form of the relationship, such as whether it is linear? These questions are all addressed in this chapter, using techniques and procedures such as the Chi-square test for independence, various measures of association, interpretation of percentaged tables, and prediction analysis.

Chapter 4: Tables of Central Tendency. These tables are used in analysis of educational data. In this chapter, a step-by-step procedure called two-way analysis, is used to increase the amount of information available from tables of means. A basic additive model is first developed, with refinements for those situations where the basic model does not sufficiently describe the data. This chapter also continues a basic analysis approach where the observed data are predicted with the use of a simple model, and the closeness of the observed and

predicted values is used to determine whether the chosen model is useful in describing salient features of the data.

Chapter 5: Regression Analysis. The nature of a relationship between certain types of variables can be explored with graphical techniques which attempt to fit a line or some other functional form to the plotted data. One such procedure, called regression analysis, is discussed in this chapter. A variety of fitting procedures, from simple to more complex, are described. Summary numbers, such as the correlation coefficient, are also discussed, as is the importance of assessing the goodness-of-fit of the data. Regression analysis is a powerful technique which is often misused. This chapter discusses the purposes for which the technique can be used, the conditions under which those purposes can be achieved, some of the problems with the technique, and the meaning of the summaries and coefficients which result from the analysis.

Chapter 6: How Educational Statistics Can Be Utilized for Policy Analysis. A case study of the planning office within the Ministry of Education in Paraguay suggests ways in which planners can use existing data bases to provide information of value to decision makers. Included in the discussion are: (1) how variables of interest to decision makers can be identified; (2) how to sample existing data files to produce a useable data set; (3) how to design and perform a procedure for rapid hand tabulation of the data; and (4) how to conduct analysis of the data and present simple reports of findings.

Appendix: Simple Random Sampling. Research techniques for the collection of data are not described in this text. However, one such technique, called simple random sampling, is used at several places in the text, and this appendix describes the basic procedure for collecting data through a simple random sample of some larger universe of items.

Despite four-volume coverage in this set and two additional manuals for project planning and costing in nonformal education and educational technology referenced in the Foreword to Volume II, there are still many topics in educational planning which are not covered in detail. Many of these topics are dealt with more thoroughly in the list of project papers which appears in the appendix of Volume IV. Some of these project papers — for example paper number 84 — are complete volumes which report several educational research and planning studies. The project papers also contain several valuable case studies, some of thesis and book length. All computer program documentation had to be left in the project paper stage and not developed into book form. Almost fifty planners, researchers, writers, editors, and research assistants worked on this project, and if they have learned anything, it is that the field is vast, ever-changing and without neat boundaries.

Volume I

Issues & Problems

CHAPTER 1

Planning Education for Development: Basic Issues

RUSSELL G. DAVIS AND BARCLAY HUDSON

1.0 *Background Note*

This chapter introduces and discusses issues or problems that arise in the context of educational planning in the developing countries. In some cases the discussion begins with issues and problems that arise in the education systems of North America and Europe. The discussion then moves on to the developing countries. For other issues the order of the discussion may be reversed; it begins with a developing country and then moves on to Europe or North America. Education systems and their problems are sufficiently similar in all countries to make comparative analysis worthwhile. Still, our main focus is on developing countries.

There is no satisfactory term to distinguish the richer countries of Europe and North America, and Japan, from the poorer countries of Africa, Asia and Latin America. Here, the term *developing* is used to refer to the latter countries. Developing countries are primarily agricultural, with farmers engaged in subsistence level activities, a per capita income (1973) of less than $200, but no set of indicators can perfectly define the group. Incomes can range higher; subsistence agriculture may not be as predominant The meaning should become more precise as we go along.

Issues change Yesterday's problems may be solved. The issue may fade from attention. But the problems of poverty and underdevelopment have not been solved. The issues of maldistribution of income and property have not faded. The failure to meet basic human needs has lasted as a central issue for the past four decades. The failure of education to end poverty and injustice in the developing countries has had more attention recently, rather than less.

This is a survey. It does not deal in depth with the issues it raises. Later chapters in this and other volumes in this set will deal with these issues in more detail. This chapter identifies the issues and provides a framework for further discussion of issues relevant to the planning of education in developing countries.

1.1 *Issues and Problem Areas Addressed by Planning*

Educational planning is said to have three basic approaches used at the national level, and we would add a fourth applied mainly at the project, or program, level: (1) estimation of social demand; (2) manpower planning; (3) rate-of-return analysis; and (4) cost-effectiveness analysis (Blaug 1967; Roger and Rucklin 1971). The typology of three basic approaches is a simplification devised by academics who are commenting on planning as they view it from a distance. Most planners mix their methods, using population forecasting to establish demographic or social targets, economic forecasting to set manpower demand, cost-effectiveness analysis to evaluate major projects and, more rarely, rate-of-return analysis to supplement other approaches.

About 25 themes are reviewed in recent publications which identify and discuss new issues in educational planning (IIEP — International Institute for Educational Planning — 1964, also IIEP 1971; OECD — Organization for Economic Cooperation and Development — 1973; IDRC — International Development Research Center — 1976; UNESCO — United Nations Educational Scientific and Cultural Organization — 1970 Also see works by Faure 1972, Platt 1970, Purves 1975).

Of these twenty-odd themes, several are mentioned by two or more sources These include issues of new educational media and innovation; ends and purposes of education; equity; case and self study; assessment and response to basic needs of rural and poor areas; popular participation in planning, higher education, long-range futures; management and administration, transactional analysis and problems of plan implementation, cost and finance, evaluation, assessment and accountability, and nonformal education. In the United States, because of declining enrollments and shrinking school budgets, the topic of decremental planning, or managing for decline, has become prominent, along with emphasis on basic learning and skills, and assessment programs to increase system and individual accountability

A dozen issues are cited with great frequency the four classic approaches already mentioned (1) social demand, (2) manpower forecasts, (3) rate-of-return, and (4) cost-effectiveness — plus the following. (5) analysis of education effects, (6) systems models and rational planning, (7) participatory and local-based planning, (8) continuing education, (9) planning education for increased equity, (10) work-related education (including the problem of the educated unemployed), (11) plan implementation; and (12) the teleology, (broad ends and purposes) of education, which includes ideology, national goals, and the social ends and purposes of education.

The major issues will be briefly reviewed. The last-named category includes perhaps the most fundamental issues for planners and deserves a prior comment. In these volumes this topic covers not only

the goals of development but also the ends and purposes of education in the context of development. These ends and purposes are differently conceived, according to different value systems, sets of political goals, and ideologies, all of which will shape the way educational planning is approached. There is no neutral objective or value-free approach to the planning of education and development.

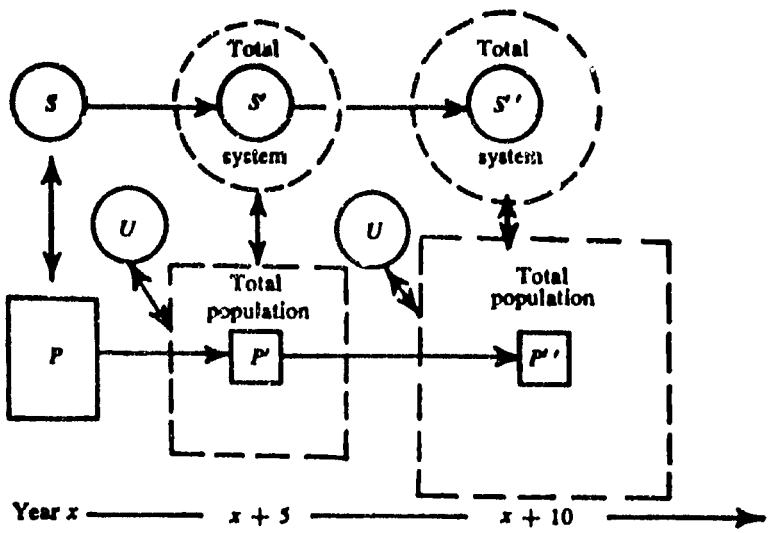
Clearly, an educational planner will approach his task differently, depending on whether or not he views development and education from a neoclassical / capitalist, Marxist, or Islamic value position and ideology. Despite this, the education systems that develop in the different settings are remarkably alike in their formal features and problems. Perhaps this is so because it is difficult to plan, organize, and manage education under any political system.

2.1 *The First Planning Approach Considered: Social Demand*

The social demand approach to planning education in developing countries is usually based on national goals of universal schooling. A typical plan goal states, "all children, ages 6 - 11, will receive primary education." Targets for schooling, usually through primary and sometimes through middle and secondary levels, are based on demographic forecasts in which the population in a school age-group is projected, and a given proportion of that age-group is set as a target for schooling Chapter 3 discusses this approach

The bases for the forecast are the standard components of demography a base year population, additions to the population through births; reduction of the population through deaths, and net changes in the population (plus or minus) through migration. Fertility, mortality, and migration rates determine the projections (Figure 1 1 sketches the school/population relation)

Economic and cultural conditions also influence the effective demand for schooling University enrollments depend on income levels; income distribution; private costs of education, nonformal schooling opportunities, job markets and requirements, shifts in cultural norms; political pronouncements affecting social expectations; and the local accessibility of educational opportunities. The number of applications to a university is influenced by changes in direct and indirect costs Tuition costs affect enrollments in the United States In the developing countries the state supports higher education, but students must have family help or supporting jobs to carry other costs Admissions to universities in the poor countries are often controlled by sheer space availability in the high-demand fields, or by enforced standards through examinations, or credentials, or grade point averages. In developing countries, where universities are state-supported, planners may have to deal with population pressures to expand schools beyond space limits and educational quality standards. In the United



P = Original population
P' = Survivors for 5 years from original population
U = migration
P'' = Survivors 10 years
S = Original system
S' = Surviving system from original

Figure 1.1
Social Demand Planning: Educational System/Population Relationship

States, planners must chart the market demand of education customers. In both situations the task is to chart change in enrollment rates in response to change in the population, income, education policies (fees, aid) and costs. Enrollment forecasting is complex even when good data bases are available. Many different social, cultural, economic, and even personal factors, influence private decisions to enroll in universities, both in developing and developed countries.

Major shifts in social demand occur at lower levels of an education system, chiefly in times of significant political change. Indeed, demographic-based planning came to the fore at the time of UNESCO's involvement in educational planning for newly independent nations, in the years 1950-1970.

Planners were given a simple mandate for setting educational targets. Political leaders decreed that there would be universal primary education for children in certain age groups, usually 6 to 12; hence, it was only necessary to project the future numbers in the age group and apply a proportion, somewhere close to .95, to the age group. This yielded estimates of school entrants, and first grade enrollments.

Enrollments were estimated for higher grades by multiplying by the proportion who go on to the next grade level. From this step planners estimated enrollment targets to be covered. To the resulting enrollments target, planners applied simple input ratios of student/teacher and student/classroom, to estimate the resources required to fulfill the plan targets. In most cases plan targets were never fulfilled, but the planning approach was straightforward (Davis 1966; UNESCO 1970).

In the United States, in recent years, demographic-based planning has gained more attention, after the baby boom ended in the early 1960's and the long slide into declining enrollments followed. Continued decline is projected up to the 1990's. Demographic-based enrollment projections show interesting dynamics and changes over time, both in the United States and developing countries. In the United States, early grade enrollments will begin to rise again (Davis and Lewis 1977), as live births increase. Late in the 1980's there will be a modest gain in enrollments. In many developing countries, population growth is slowing as fertility declines; but enrollments still continue to increase to accommodate out-of-school children, or even to provide access to youth and adults previously excluded.

Demographic change continues to affect enrollments and shape plans. Educational plan targets are still set primarily on the basis of social demand, which depends on population and income trends. Although demographers are constantly improving their methods to the benefit of planners, no methodology gets around problems of estimating future fertility changes. More research is also needed on the sensitivity of demand for education in response to factors other than demographic change, such as increased income, urbanization, and changes in attitudes toward work and education.

3.1 *Manpower Planning*

Manpower planning issues are discussed in Chapter 4, and instructional units on the models and methods are presented in Volume II. Early contributions to theory and models were made by Tinbergen and Bos (1965) and by Correa and Tinbergen (1962). These models traced manpower requirements, as expressed in general educational attainment equivalents, directly from forecasts of national, aggregate growth in the economy. Very general estimates of educational requirements (numbers of educated people) were derived without the intervening step of relating growth in the different sectors of the economy to employment, to occupational structure, and thence to educational requirements.

The first step in conventional manpower planning is to forecast employment within economic sectors. The sector employment projection is then distributed by occupations. Since occupation is related to education, the occupational distribution yields the projected man-

power requirements expressed in educational attainment terms, as, for example, the number of high school graduates, or the number of engineering graduates.

The projected requirements must be compared with the current stock of educated workers plus new graduates. The stock of manpower in the workforce is reduced over time by death and retirement rates and increased by graduates of education and training programs. The result is subtracted from the projected manpower requirements. The net surplus or deficit of manpower requirements, expressed in education levels, is used as a plan target for the education-training system. Parnes (1962) and the OECD economists (1967) made substantial contributions to the development of the methodology in the Mediterranean project and later in a transfer of the approach to Latin America (Argentina). The same conventional approach was used by Platt and Davis in Chile (1964), and it is explained in the manpower units and cases in Volume II of this series. The approach is widely criticized by university-based economists and widely practiced by planners in the field.

Chapter 4 discusses the use and criticisms of the method leveled by university based economists. Davis (1966) has argued that though the method is criticized (Blaug 1967; Daniere 1965; Woodward 1974; and Freeman, 1975), it is at the same time useful to policy makers in the developing countries. The bulk of the criticism is centered on assumptions of fixed, and sometimes rigid, occupational structures within sectors and industries, when in reality, occupational distributions can differ according to differences in technology, scale, organizational patterns, culture, custom, and whim. When coefficients, reflecting the occupation by industry distribution, were lifted from one country or enterprise and plugged into the plan of another, the underpinning of rationality was suspect The methodology was not noticeably improved by deriving the coefficients from regression analysis which averaged the patterns of several countries, or from trend analysis based on past data within the same country.

Even if the occupational and educational coefficients had a sound basis in the original analysis, changing patterns — some technological, others cultural, some whimsical — combine to undermine the projections after brief time periods. The manpower approach was also criticized for ignoring labor price and market influences on demand and supply, and for other simplifications. Still, the method was applied and used to shape policies, plans, and programs, because it was understandable to policy makers and planners. Also, other alternatives, such as rate-of-return, had weaknesses. Though demand for manpower studies declined in the early 1970's it appears to be back strong in countries which require some quasi-rational economic basis for setting educational policies.

Manpower planning is done at the national level, the local level, and

within a given firm or industry. At the local level, the results do sometimes influence policy and program developments, despite bad data. It may be hoped that better models, more timely processing of current data, and development of more sensitive trend indicators will yield more accurate and stable results. Job requirements will always be changing, however.

Several current developments in the manpower planning literature deserve note. One is increasing recognition that manpower planning and benefit-cost analysis can be applied to analyze the same problem. Manpower planning can be used to indicate the amount and kind of education and training required for workers; and benefit-cost comparisons can be used to indicate which alternative training programs can best produce the workers. (Somers and Woods 1969; Hardin and Borus 1971.)

To improve the fit of manpower requirements forecasts to reality there are a variety of mechanisms for adjusting demand and supply in the workforce without reliance on long-term formal education. Jobs and work can be rationalized and reshaped to fit workers' skills and education. Reorganized education and training can cut down education/training time. In crash efforts during wartime, work has been organized to fit workers' skills, and training has been speeded up. The fit of workers to market needs is improved by retraining on the job, and by employment support efforts, which cover location of job vacancies, facilitation of job entry, relocation of workers, along with counseling and job support. The provision of education and training that prepares future workers to adapt to changing job requirements has been the age-old aim of general and basic education. This idea has been developed recently within vocational education by training for job families, or clusters, and by supplementing basic preparation with additional training and retraining through a worker's active life.

With all these adjustment mechanisms possible, why are manpower plans needed at all? Evidently, manpower forecasts are useful when the development period is long, when skills are high and formal (medicine), and where there is need to coordinate creation of modern sector jobs along with new education and training (When this fails there is the pattern of emigration among highly skilled occupations from poorer to richer nations). Manpower planning works when the data exist. It can serve policy makers and political leaders who need an understandable basis for allocating scarce resources for advanced education and training in the face of manifest need and lack of coverage at lower levels of education. In the latter case, manpower planning may be useful but not socially attractive, and the abuse of the high-level manpower argument has been criticized (Davis 1966).

Assessment of the state-of-the-art in manpower forecasting indicates that some forecasts do have reasonable accuracy or at least agree with the way things come out at some future date. Corvalan (1966) assessed several manpower forecasts in Chile and found that

some of them came out as predicted. The U.S. Bureau of Labor Statistics has attempted to assess the accuracy of its own manpower projections in evaluating the ten-year forecasts, 1950-1960 (BLS 1974). Employment was generally estimated accurately in most of the occupations. In rapidly expanding sectors, however, a few occupations were inaccurately estimated, though not completely wrong. There is enough accuracy in the Bureau's method so that it persists and, of late, the demand for manpower forecasting seems to be rising again, especially for micro-level analysis of requirements in special sectors, such as health and modern agriculture; in key industries; and for specific occupations.

The need for manpower planning is perhaps greatest in less developed countries. Here, gaps between supplies and needs are large, and key occupations for modernization may require educational changes all the way down to elementary school Also, there may be a weaker infrastructure of short-term adjustment mechanisms, similar to those mentioned in previous paragraphs

4.1 *The Rate-of-Return Approach*

Rate-of-return is said to be the third major approach to educational planning (Blaug 1967), though some express doubts about how much rate-of-return is used to shape educational plans (Davis 1969; Psacharopoulos 1975). The concept of education as an investment and the methods of discounting educational benefits and costs over time come from general economic theory and more specifically from human capital contributions to theory. The basic notion is that education yields benefits in the form of increased production, which is reflected in increased earnings of educated workers, and these benefits can be compared to costs and evaluated over time as an investment The rate-of-return is the rate of interest yielded by the investment in additional education. Rate-of-return analysis can be applied to the yield from an investment in an educational project, but here we are interested in the application of rate-of-return to rank one level or type of education over another in planning for an entire educational system This is done on the basis of returns to investment in education, which are reflected in the differences in earnings of people having different levels and kinds of education. For example, a college graduate will usually earn more over his lifetime than a high school graduate. This earnings difference is evaluated, just as the return, over time, on any other investment is appraised

Rate-of-return simply takes the notion of investment and applies it to earnings that supposedly result from increased levels of education. If workers with one level of education earn more than workers with the next lower level of education — and on the average this holds, although not always because of education itself — then the difference between the net earnings of the workers at the two levels can be evaluated, over

time, just like any other investment. Benefits-costs ratios can be compared, or rate-of-return comparisons made. Internal rate-of-return is the interest rate that will equate the net income streams of the two successive levels of education, and thus show the investment worth of the additional education. The rate can be compared with interest rates, or with earning rates from other investments, in order to assess the social or private returns on investment in given levels or kinds of education. Social returns are looked at from the standpoint of a community or society; private returns are looked at from the standpoint of the individual (or his sponsors). The social and private returns from the same education may differ because different costs and benefits are included in the calculations. For example, in many developing countries the government pays most of the costs of higher education, and the state may accordingly subsidize individual students or their families. The costs paid by the government would be included in social rate-of-return estimates and thus tend to lower the return. They would not be included in private return calculations. Thus individuals might continue to seek higher education even when it showed a poor prospect for enhancing employment and earnings The private return is higher than the social one

The rate-of-return approach has many flaws. The model and the analysis never attempt to show that education leads to learning; that learning leads to improved job performance; that improved job performance leads to increased output; that increased output leads to increased earnings; and thus increased education brings increased earnings. Some fraction of the differences in earnings for the different levels of education is attributed to education The magic fraction is around two-thirds (We will see that the regression model applied in education production function analysis and the path models built up on regression may attempt to portray the relationship between education and earnings But that portrayal is crude)

There are measurement problems in the way most earnings profiles are constructed The analysis does not follow a worker with a given level of education over his work life to trace the increase in earnings that come with age and experience Most earnings profiles are cross-sectional; they measure earnings at one point in time The earnings of workers with the same education level in successive age groups are built up to simulate the effects of age and experience.

Lastly, there are problems when rate-of-return results are averaged for a large group or area. Earnings may differ by sex, by area of a country, by sector of the economy, or by type of labor market. When a rate-of-return is computed for the whole country, these differences are averaged in order to show a difference only by education level. This averaged difference may be meaningless, however. Two cities in the Dominican Republic showed very different rates-of-return for attending secondary school (Dominican Republic 1974). The investment decision in the city with a high return might be to attend secondary

school. In the city with the low return, the first investment decision would be to take a bus to the high city. The major comment to be made here, however, is that rate-of-return received a lot of discussion in the economics of education literature, but it was not used very much in planning practice in developing countries. In the Dominican Republic study, rate-of-return estimates, which differed greatly by sex and by labor market areas within the country, were moderately useful in supplementing manpower analysis.

5.1 *Cost-Effectiveness Analysis*

Conceptually, cost-effectiveness analysis is linked through cost-benefit analysis to rate-of-return. Underlying all three is the basic notion of education as an investment which can be appraised. There are differences, however Cost-effectiveness and cost-benefit analysis are usually applied at the project or institutional level, whereas the rate-of-return approach dealt with in the previous section is applied at systems planning level Cost-benefit, also called the benefits-cost ratio (B/C), is the ratio of project benefits to project costs usually after both have been discounted to present value with an appropriate rate of interest. In B/C comparisons the benefits and costs are expressed in, or converted to, monetary terms Cost-effectiveness does not require conversion of effects to monetary terms The effect, or outcome, can be measured in nonmonetary terms Hence cost-effectiveness as a topic relates to studies of educational effects which will be dealt with in the next section (It is also related to cost-efficiency, where the measure used for effect is generally savings in time or money)

Here the chief concern is with general trends in the application of cost-effectiveness approaches One of the main problems is getting general agreement about what kind of educational outcomes are effective. For example, is education which results only in educational unemployment effective? Picker (1978) has developed a set of models to assess effectiveness by examination of a sequence of relationships between educational objectives and outcomes A two-stage assessment is made In the first, the agreement between the educational objective and the behavior which results from the learning experience is assessed. This is the conventional instructional assessment model A second stage in the assessment is to evaluate whether or not the learning objectives are consistent with the broader social purposes and economic goals of the society in which the education is offered This is not simple to assess Both assessment steps are necessary, however, before education can be judged as relevant or truly effective (Picker 1978).

A second set of issues arises in the measurement of the effects of education There are two branches to this topic, the first of which is the measurement of the direct effects of schooling, using tests of school achievement The second, which will be briefly mentioned here and then dealt with more thoroughly in the next section, is the measure-

ment of school outcomes, or external effects of education. Educators and social psychologists often refer to this as the assessment of the effects (external) of schooling; and economists sometimes refer to it as analysis of the external efficiency of schooling.

Interest in evaluation and assessment of educational programs and teaching-learning outcomes has had a long history within the professional field of education itself. The work of test and measurement specialists has yielded a vast research literature, and test files that go back to the pioneer work of Binet (1937) and Terman (1947). The line is continued in work that goes forward in almost all countries of the world. Purves (1976) describes the IEA study (international evaluation of educational achievement). Tests of special aptitudes, educational achievement, and general intelligence are reviewed in periodic editions of Buros' *Mental Measurement Yearbook* (1978).

The traditional testing of achievement was limited to an assessment of what educators might call the *internal effectiveness* of education. The curriculum was accepted as given, and a sampling of learning outcomes from the curriculum was selected for testing. The learning selected was assumed to be valid, which meant relevant to some external performance criterion—for example, that the behavior learned would make the learner more skillful in his job. This external linkage was not proved in conventional testing. More recently, there has been stress on testing external effectiveness, or the relevance of education systems and programs. Here the evaluation goes beyond assessing whether or not behavior is changed in the desired direction and learning takes place. The objective is also to assess whether or not this learning is an effective or relevant economic or social outcome.

This form of assessment is much more difficult to accomplish. It is one thing to test whether a simple learning task has been accomplished, but quite another to show that this accomplishment (uttering a sound in a foreign language or showing understanding of a mathematical concept) has relevance to later economic and social performance beyond school. Yet this is what a demonstration of effectiveness of educational system or program accountability would require.

It is traditional to look at *costs* in terms of monetary resources, and *effectiveness* in terms of one or more quantifiable measures of progress toward specific objectives (see Figure 1. 2.). For actual policy decisions, however, the operational considerations might be exactly the reverse. The most important costs may turn out to be *nonmonetary* costs incurred as side effects. (Too much schooling may lead to unemployment.) Programs may be supported because they bring monetary benefits to implementers as distinct from actual services delivered to the ultimate client.

During the 1960's, considerable research went into estimating the monetary returns to different types of educational investments. The

	Type of factors to be considered in computing cost-effectiveness		
	Monetary	Other quantities	Qualitative
Costs	(1)	(3)	(5)
Effectiveness	(2)	(4)	(6)

traditional comparisons*

*A traditional (1) to (4) comparison would be per graduate cost.

Figure 1.2
Cost-Effectiveness Comparison

unstable and conflicting conclusions suggest that many educational benefits cannot be monetized. Consequently, work has tended to shift from cost-*benefit* to cost-*effectiveness* studies, some involving non-monetary objectives. One approach emphasizes meeting fixed targets at the least cost; another aims at the maximization of objectives subject to fixed-cost constraints. In either case, cost-effectiveness analysis shifts the emphasis to questions of economic efficiency in undertaking educational *missions*, beyond the more fundamental question of whether to undertake a mission in the first place. Politically there may be no choice.

PPBS (Program, Planning, Budgeting Systems) reflects this mission-oriented approach. The central feature of PPBS is to define program objectives and to budget and allocate resources, and analyze costs in terms of accomplishing these objectives. More traditional budgeting referred to objects of expenditure or activities rather than outcomes. PPBS had early appeal to planners who are supposed to deal with objectives. Other features of PPBS, multi-year budgeting and zero-based budgeting (justifying each program anew in each budget period) also seemed to fit planning requirements. Despite numerous criticisms (such as Hoos 1972; and Merewitz 1971), the basic concept of PPBS is kept alive under various newer guises, such as MBO (Management by Objectives), the Logical Framework approach (used by AID in educational planning), Zero-Based Budgeting, the Goals-Achievement Matrix approach (Hill 1968; Lichfield 1970; Hudson 1974), and other formats.

In cost-effectiveness analysis there are many interesting issues and problems related to the measurement of costs. The measurement of effects, however, is the topic that has interested a larger and more diverse group of researchers, analysts, and planners. Educational researchers, social psychologists, and sociologists have long been interested in studying both the internal and external effects of education. These studies have been the staple of educational research for the past

three decades, and some of these studies go back more than fifty years. More recently, economists have been engaged in studying both internal and external effects, using simple linear regression-based models. The economist sometimes applies the term *education production function* to the analysis of internal effects.

6.1 *The Study of Educational Effects: Regression Models and Production Function Analysis.*

The study of educational effects has been a central topic of educational research, and production function analysis is simply the economist's term for what has long been done by educational researchers, psychologists, and social psychologists. Because educational planning has been dominated by economists, there is a tendency for some planners to think that educational production function analysis is a recent development. The only thing new is the conceptual backing in human capital theory for the application of the term to education. The production function term is useful because it serves to highlight the simplistic, and in some situations absurd, notion of the education process that is implicit in some of the applications of the linear regression model. Education production function analysis examines the relationship between what goes into education (inputs) and what comes out of education (outputs and outcomes). Learning is supposed to be what comes out of education. The learning that is measured and analyzed in an education production function analysis is usually school achievement. Many inputs are used in the process of education. Basic inputs are teaching services, curriculum, instructional materials, and physical facilities and equipment. Many more things, less easy to observe and measure, also are brought to the teaching-learning situation. The individuals come to the teaching/learning experience with pre-shaped aptitudes, attitudes, motivation, and previous learning. These antecedent characteristics powerfully shape the effects of teaching/learning, although analysts do not always find it easy to deal with them Community and institutional surroundings also affect the outcome.

In a typical production function analysis (Bowles 1968; Levin 1970) students are characterized by sex, age, social class, and parental education level. The educational inputs are books, certain kinds of teachers, curricula, instructional methods. The student characteristics and school inputs are the independent variables. The dependent variable may be a measure of educational achievement, a test score, or a grade point average. The analyst then regresses the set of independent variables on the dependent variable through multiple linear regression. The resulting multiple regression coefficient then shows the extent to which the set of independent variables is related to the dependent one. The multiple regression coefficient squared indicates the percent of variance, in the dependent variable, explained

by the set of independent variables. The practical significance of the analysis, such as it is, is that the model gives the analyst some idea of how certain educational inputs, or instructional interventions, *affect* achievement. But *affect* is used in a very peculiar sense, because again the order and causality are not clear. All the analysis demonstrates is that the variables are related.

Economists and sociologists (Jencks 1972) have extended the education production function analysis another step beyond the study of the relationship of educational inputs to educational outputs (achievement). The next step consists of relating education achievement to later earnings, or outcomes. A chain can then be established (at least in the minds of the analyst) in which a path can be followed from educational inputs (books, teachers, classrooms) to educational outputs (school achievement, attitude changes) to educational outcomes (earnings in later employment after schooling is completed). This would be a bold path to blaze because it means in theory that planners could assess the consequences of changing educational programs, by analyzing the effects on a true performance situation in the economy. Path analysis is a regression-based method which attempts to provide a model of the direct and indirect effects (paths) among chains of variables In this situation the path is from educational inputs to outputs (achievement) to outcomes (earnings). As the path lengthens, many other unidentified influences affect the relationships.

Educators and sociologists have long used the simple regression model to study relationships, and presumed causes and effects, between educational antecedents and educational outcomes The model has been used to study educational input/output relationships, using large samples of students. The model is essentially the one applied in Coleman's Educational Opportunity study (1966) and later reanalysis of the same or similar data by Levin (1970), Bowles (1968), and Jencks (1972).

Application of the regression model to the analysis of educational effects has been criticized by both theorists and planning practitioners (Lewis 1978; Bowles 1968; Davis 1975). The regression model applied in production function analysis attempts to show how given educational inputs affect output in the form of educational achievement. In fact, the analysis shows only that changes in the input variables are associated with changes in the output variables. Learning conditions are not controlled nor instructional inputs systematically varied as in a controlled experiment The analysis is applied to existing data, where the influences of many variables are mixed. The model is criticized because many of the independent variables are related in some unknown way, and this affects the overall relationships with the dependent variable. For example, one teaching method and set of instructional materials may go better with a certain kind of teacher. In almost all cases, important variables which affect the outcome may be left out of the model. The model also assumes linearity in

the outcome when this is not true in many learning situations. The same instructional method may have a positive effect on one learner and the opposite effect on another; and these differences are averaged and lost in the analysis. Problems are multiplied when the analysis is stretched beyond the study of inputs and outputs to trace effects all the way to outcomes in the workforce after schooling is completed. Here, there is the problem that education and schooling may have little to do with increasing marginal product; and earnings may not reflect an increase in marginal product, in any case. For example, in his work Medoff (Medoff and Abraham 1978) indicates that earnings may increase as a worker's experience increases, while his productivity is declining.

The many practical difficulties both in interpreting the results of regression analysis and in using the results in policies and programs, have prevented wide application of the method in planning. There are also flaws which are more theoretical, and therefore of less concern to practitioners. The models and methods are covered briefly in Chapter 2, Volume II, and a more comprehensive critique of the underlying linear regression model is developed in Volume IV. In the next chapter we will go on to issues that are specific to educational planning, and then to issues which are related to education and development more generally.

CHAPTER 2

Planning Education for Development: Additional Central Issues

RUSSELL G. DAVIS AND BARCLAY HUDSON

1.0 *Introduction*

The first chapter raised a number of issues linked to the so-called basic approaches to educational planning, and in this chapter we will continue the discussion of other major issues and problems in educational planning. The first topic to be introduced is rational planning, and the models and methods used in this approach to planning. Though critiques of the limitation of rational models and methods are presented in this and in other volumes of this series, the main body of this work will center on rational planning.

1.1 *Systems Models and Rational Planning*

A number of issues arise under the term of systems planning. First, there are issues arising in the rational, or rationalistic, approach to policy analysis and planning. Secondly, there are issues that arise in planning for the education system as a whole, rather than planning for parts of it. Here, the more appropriate terms would be *integrated planning* or *comprehensive planning*.

Rational planning based on systems models and analysis has had a period of rapid development which has now run it course. Hare (1967)) offered a primer on the application of general systems models and analysis to social planning. Banghart (1970) and Hussain (1973) applied systems models and methods to educational planning. Hopkins (1971), Weathersby (1967), and Judy (1969) represent the vigorous development, and occasional application, of systems models to the planning of higher education. Schiefelbein and Davis (1974) applied models to the planning of general educational systems development. Charnes and Cooper (1961) covered the extensive development and use of models for management and planning, and McNamara (1971) reviewed the many proposed and actual uses of models in education. In the past two decades most planners were trained in rational methods (Davis 1979).

At the same time, there was criticism that social planning placed far too much trust in rational approaches, models, and methods. Linbloom (1965) produced an early classic which criticized rationalistic limitations; Hoos (1972) took on systems analysis specifically; Caidan and Wildavsky (1974) and Merewitz and Sosnick (1971) critiqued rational methods applied to budgetary analysis and planning. Friedman (1973) and Dunn (1974) were more concerned with weaknesses in the underpinning of rationalistic analysis applied to social planning; and Churchman (1971) attempted to reformulate the epistemological foundations of inquiry and analysis. When models were proposed as applicable for planning, as in Adelman (1965) and Bowles (1969), or applied in a planning situation, as in Correa and Tinbergen (1962) and Tinbergen and Bos (1965), there were both general criticisms and specific picking at details.

Beginning with Waterston (1965) and Hirschman (1967) and culminating in more ideologically based critiques of Goulet (1971), Illich (1971), and the Marxists, there was a general onslaught on the shortcomings of neoclassical economics, capitalist policies, and Western rationality misapplied in developing countries. These criticisms are raised in Bowles (1979) and by Warwick in Chapter 16. The usefulness of rational planning models is discussed in Chapter 7. The second volume of this set is designed to teach the models and methods of rational planning.

In retrospect it is possible to see that much of the furor, pro and con, over systems analysis, rationalistic planning, and the development and application of models was a tempest in that most tempestuous of teapots — academic literature. Few models were ever applied in practice, and little damage was done by too much reliance on rational methods. Quite the contrary! Decisions were made in ways that were irrational enough to gladden the hearts of the most implacable critics of systems planning and rationality.

The terms integrated planning, or comprehensive planning, refer to another set of issues for educational planners. Integrated planning refers to coordination of plans and practices among different educational programs and related activities. Often, it refers to coordination between primary, secondary, and higher education. Higher education has had autonomy from state control in most developing countries, but as university education has come to absorb an increasing share of state revenues and allocations, and as national plans have increasingly specified manpower requirements, state interest and control have grown.

In the United States, state and federal planning for higher education received major impetus under the Morrill Land-Grant College Act (1863), and again under the Higher Education Facilities Act of 1963. The Newman Study (1971), Fleischman Report (1973), and the Carnegie Reports (1973) were attempts to analyze education in a more comprehensive and integrated fashion than was traditional in the

United States. In developing countries, integrated planning has come to include the university level, but autonomous universities often resist the interference of government planning agencies. National planning offices sometimes influence budgets and allocations. Hence they have more power than ministry of education planning offices; and universities have had to respond to offices that affect budgets and allocations.

The concept of integrated planning also refers to overall educational reform, with attention not just to quantitative targets, but curriculum overhaul and system reorganization — for example, reorganizing basic education supported by curricular design, media development, teacher retraining, and textbook production. There are cases where planning followed reform, as in El Salvador, where it accompanied reform, as in Chile, but as yet few clear cases where planning preceded and shaped reform. Reform initiatives more often are stimulated by politicians with political and social agendas. Planners are then brought in to tidy up the rationales.

In some cases, integrated planning refers to the linking of long-term plans and short-term implementation, particularly through budgeting/planning. PPBS (Program, Planning, Budgeting Systems) follows logically from this concern. On the implementation of plans, see Pressman and Wildavsky (1972), Correa (1975), and Warwick in Chapter 16.

Another form of integration refers to the coordination of educational planning with national economic planning. This was the impetus in the developing countries, beginning in the mid-sixties, for creating national planning offices in which education was planned as one sector of national economic development; or education was planned under a more general social sector which included health and social welfare programs. From viewing education as a sector, came another approach to planning, the concept of a national learning network. This network idea includes formal and nonformal education and training. Ideally, the network planner would cover all institutions and programs which contributed to human learning in a national domain. Planning has rarely become so comprehensive.

Related to the issue of integrated planning in the education sector were USAID and World Bank efforts to support educational sector analysis and educational sector assessment. The *sector* approach analyzes and plans education comprehensively, as a total sector. An *analysis* is more detailed than an *assessment*, which is usually based on existing data rather than on basic research or survey data. Sector analysis and sector assessment are designed to gather and analyze data for comprehensive sector plans. A major analysis was undertaken in El Salvador from 1973 to 1977. (The methodology and findings are discussed in *El Salvador Analisis Sectorial*, 1973-1977). The project, with B. Robinson of USAID as a principal adviser, issued many good methodological, analytical, and statistical working documents,

and a number of summaries (Robinson, USAID, 1977). Daniere (1979) reviews the sector assessment experience of six Latin American countries. Sectoral analysis efforts were large and costly, and some cases did not affect plans and policies commensurately. The quality of the analysis does not guarantee that policy makers will utilize the results.

2.1 *Localization of Planning: Area Planning and Participation*

Educational planning sometimes centers at local level and sometimes at the national level; and often there are shifts from one level to another to improve management, increase local participation, and attract local or national support. In the United States, where major support for education was provided by state and local governments, the major planning efforts were local. Then, increased federal funding and mandated programs brought more compliance planning initiatives from the national level. Lately, there has been some shifting of responsibility down to the local level, particularly in manpower planning under CETA (Comprehensive Employment and Training Act) programs (Halstead 1974). In the developing countries, planning began at the national level and lately has been shifting to area planning, school mapping, and community-based planning, which may accompany efforts to decentralize educational management and increase local participation. Venezuela and Colombia launched decentralization efforts in the sixties.Brazil, Nigeria, Pakistan, India, and Indonesia have, because of their size and complexity, long supported regionally differentiated education as well as regional, provincial, and state level management and planning. Efforts to decentralize and regionalize in other developing countries have sometimes broken down because of lack of trained cadres to go out to the regions, and because too much fiscal and decision-making power is kept at the center in the capital city.

In the context of planning for developing nations there is another aspect of localization which goes beyond the downward delegation of authority from central to local experts. There is also the need for two-way communication and planning from the bottom-up. This means, in part, learning from local initiatives rather than imposing innovations from the outside (UNESCO 1970). In addition, it reflects a growing appreciation that planners must experience day-to-day realities in the lives of people targeted for improvement (Hudson and Davis 1976; Coombs and Ahmed 1974; Anderson 1973; Hampden-Turner 1975; Goulet 1971). Critics fault rational planning because the models and methods do not take full account of the views of participants who are affected by social institutions and processes being planned. The views of the poor, the powerless, and the isolated are often omitted from rational planning. Marxians and radicals assert that this omission is a basic failing inherent in planning within capitalist political structures (Bowles 1979). Other critics believe that the failure lies in the narrow

way that the social process is conceptualized and acted upon in rational planning. The views of legitimate participants are not represented because rational models and procedures are incapable of dealing with these views, according to the participatory and advocacy planners Smith (1973) and Alinsky (1972).

The advocacy and participatory planners stress the social dynamics of the process, the need to move away from models and method and to incorporate the views and knowledge of participants who are affected by the plan. They also stress methods for organizing the participants so that they will take social and political action in their own behalf. Effective participation is enhanced when planners organize and work from the bottom up, according to Hudson and Davis (1976), which means that analysis should begin with the needs and views of the primary beneficiaries (those directly affected), rather than being based on aggregate analysis and national norms and procedures, as in most rational planning. Hence, the issues of localization and of participatory planning are related. The theme of participation will be dealt with in Chapter 13. Area Planning and School Mapping methods will be covered in the final two chapter of Volume II. Criticisms of the limitations of rational planning by advocates of participatory planning will be discussed briefly in several places, including the first chapter of Volume II.

In summary, the increasing emphasis on localization of planning depends on (a) political thrusts toward democratic participation in the planning process; (b) the gradual spread of planning skills; and (c) realization that planning models based on highly aggregated data are invalid unless the parameters are tuned to local conditions.

3.1 *Lifelong Education*

Published commentaries on the importance of continuing or lifelong education, most notably the Faure Report (1972), mark this as a major topic in all countries, developed and developing. In the developing countries planners have been mainly concerned with continuing education directed toward economic ends, retraining and upgrading of manpower in-service, or the combination of classroom training with on-the-job training. Inasmuch as the education and training are often offered outside formal schools and to clients older than the school population normally served, planners often closely associate continuing education with nonformal education. Recent efforts to plan nonformal education have concentrated on training for jobs, or education blended with work experience and training.

There are several confluent lines of thought on lifelong education. One derives from the idea of work-based education (Davis and Lewis 1975). Mincer (1962) has estimated that for the male labor force, on-the-job training is as important (in terms of the size of educational investment) as formal schooling, and yields a high social rate-of-return.

Adelson (1971) has examined redesigned work settings that serve to improve human satisfaction and productivity over time. In poor work settings human capital may depreciate, just like badly maintained machinery. Swedish, Yugoslavian, and North American experiments in worker-managed production processes also suggest the importance of treating jobs, education, worker capabilities, and career possibilities as *processes in continual evolution*, and not as fixed in a once-for-all-time certificate of competence (Grassman 1972).

Another premise for the concept of lifelong education derives from studies such as the Coleman Report (1966). This and other regression model studies indicated that conventional school inputs (teachers, classrooms, books . . .) explain only a modest part of the differences in school achievement. Based on the results of this analysis of effects, the larger social environment may influence learning differences more than school inputs do (Jencks et al. 1973). Lifelong education can be interpreted (in part) as an attempt to design that larger environment to enhance learning beyond what formal school can accomplish.

Lifelong education responds also to the realization that people shift jobs in mid-career more than once. United States Bureau of Labor studies show much job shifting and inter-occupational, inter-industry, and inter-sectoral mobility, although segmented labor market analysts Doeringer and Piore (1971,1972) would caution that this mobility is only true for workers operating in *primary* labor markets (where jobs have structure, status, and reward). In the *secondary* market where the jobs are low-paying, menial and informal, workers change frequently, but usually from one bad job to another.

Case studies of workers (Terkel 1972) do not reveal much mobility — upward, at least. Follow-up studies of the massive training programs that came out of the War on Poverty, the Job Corps, and the Manpower Development and Training Act, do not indicate that training is a sure path to job improvement, especially for young and underprivileged workers. Still, evidence suggests that continued education and training do go along with continued improvement in job prospects, although the relationship can be influenced by age, race, and social class, the type of industry, and social connections. Even if the evidence did not demonstrate that job mobility is created through retraining, people widely believe it in almost all countries. People act on this belief through the pursuit of further education and training.

In affluent societies, education can be considered a consumption good and not just an investment in human capital (primarily to gain increased productivity and earnings, or increased rate-of-return). More people are returning to college and university programs which they could never afford to complete when younger. Planning for service to these groups has been more a concern of institutional planners, attempting to identify and serve new markets. As the enrollment of youth in the normal age-groups for formal study declines, institutions will broaden and reach out to serve a wider age spectrum whose

members seek self development through social and cultural studies. Finally, lifelong education is related to the development of nontraditional forms of education — correspondence courses, open universities, nonformal education, educational television, and computerized instruction. In some countries it is provided through training programs in the military, or in national apprentice training.

More favorable social settings for lifelong education can also be glimpsed in the future such as the worker sabbaticals now being experimented with in Sweden (Grassman 1972). Wage subsidies for the hard-core unemployed will provide a built-in incentive for firms to raise productivity among workers hired. Shorter work weeks and longer vacations will provide leisure time for study. Computer-aided networks of part-time teachers and learners and ad hoc extension-type courses, offered at many sites including homes, will make programs widely accessible.

In sum, planners have only recently given major attention to continuing, or lifelong education, and then primarily in terms of the usefulness of programs in training for work and productivity. Education and training to improve economic performance have been the main concerns of planners in developing countries. Work-related training is stressed in the belief that work-related education prepares people more effectively for productive enterprise. A second view is that this education and training, when carried on outside conventional schools, will have lower unit costs and therefore a greater potential for reaching large numbers in situations where resources are limited. The arguments are plausible enough. Thus, planners, who long shunned dealing with nonformal education because it was complicated and difficult to manage, are now forced to help plan nonformal programs. This is necessary in countries where need is vast and resources slim. Nonformal programs are increasing. Recent education plans make some effort to include education/training outside of formal schools.

This leads to another set of educational issues which are related less to education as an isolated activity and more to the responsiveness of education to problems of social and economic development.

3.2 *Equality and Equity*

The distribution of educational opportunities is a recurrent theme in the planning literature. Often it appears simply as one item among a list of other educational objectives, as in the present review. Occasional reference is made to specific social movements which view equality as an important basis of social policy. International conferences (Mexico) have aided in promoting the rights and opportunities of women through public information. Planners in some countries have built on these efforts. Compensatory programs in education and employment, designed to secure greater equity, are worldwide (Galanter and Ross, 1978, have a large bibliography).

Many developing countries have ethnic, tribal, linguistic, or religious minorities who must receive more equitable distribution of social services as well as of social and economic opportunities. Acts to assist the Scheduled Castes and Tribes in India aim to promote greater equity. Legislation and social welfare programs designed for indigenous population in Latin American countries have similar aims; and there are increasing attempts to improve inequitable distributions based on tribal differences in Africa. Planners are mandated by foreign assistance agencies to assess the basic needs of the rural poor and to respond to these needs with new program initiatives.

The general shift of the 1970's has been away from economic growth as sole planning objective, and toward social objectives — social justice, provision of basic needs, quality of life (Faber and Seers 1972; Faure 1972; Dag Hammarskjold Foundation 1975). The shift has perhaps been manifested more in rhetoric than action, but there are promising signs. Tanzania's Declaration of Arusha (1967) was an explicit acknowledgment that the country's first Five-Year Plan had actually brought greater social inequality. Arusha and the programs that followed attempted to deal with this problem by a radical shift in priorities, especially in the field of education. The International Institute of Educational Planning (IIEP) has strongly recommended equality of opportunity as a major research theme to be pursued in the late seventies (*IIEP Bulletin* No. 1, September 1976).

International technical assistance agencies, including OECD (Organization for Economic Cooperation and Development), the World Bank, UNDP (the United Nations Development Program), UNESCO, and USAID (the U.S. Agency for International Development) are focusing more explicit attention on the Fourth World. This may refer to the 25 poorest nations (characteristically small and landlocked) or to the 35 most seriously affected (those without political strength or lacking in oil and mineral resources). Within the poor countries, USAID has singled out the poor majority as the group that must receive demonstrable benefit from technical assistance and from grant and loan programs. The emphasis given by the UN, the World Bank, and USAID to meeting the basic needs of poor, rural masses has shaped both planning and programming, and will influence implementation and outcomes as measured by distributive indicators. In the nine-question schema, prepared by AID to guide program planning, analysts are required to describe the poor majority and their needs. They must diagnose problems in reaching the needy with education and other social services. These requirements, enforced by the assistance agencies, are also covered by laws and regulations of the countries themselves, such as the Indian Laws for Scheduled Castes and Tribes. These laws have forced planners to develop new objectives, new information formats, and new indicators of plan outcomes.

There is also new recognition by planners of the role of More Developed Countries in hindering more equitable development

through exotic development programs favoring the already-rich (see U.S. General Accounting Office 1973) and requiring inappropriate technology (Dickson 1975). Some programs have encouraged inappropriate consumption standards (Schumacher 1973) and wasted resources on the purchase of costly and unnecessary arms. Some trade policies have impeded growth in developing countries. Agencies carrying out research on these issues have also sought ways to inject their findings into policy-making processes. The Economic Commission for Latin America was a forerunner in this tradition; more recent examples are the Intermediate Technology Development Group in London and the Science Policy Research Unit, based at Sussex University.

One of the most significant contributions to the equity issue in education came out of the Coleman Report (1966). Contrary to most expectations, the Coleman analysis found that minority (non-white) populations were not facing a major problem of unequal treatment in terms of access to educational resources, at least as measured in this study. Yet minorities were found to be lagging further behind in achievement with every increment in years of schooling attained. In view of these findings, the authors of the report took a major step in redefining equality to mean equal educational *outcomes*, and not simply equal exposure to educational *inputs* (teachers, books, classrooms, and other learning facilities). The extent to which equality of outcomes can be a guaranteed right in education, a social goal, or a norm against which to measure successful plan attainment, will be treated in Chapters 8 and 9 of this Volume. When planners set equity and equality of outcome as goals, there are new challenges for educators. Educators and planners will be forced to deal with far broader social issues in the future.

Coleman (1966), Inkeles (1974), and Rotter (1962) indicate that a key variable determining achievement is a person's sense of efficacy, or control over his/her destiny. This suggests a broadening of educational planning to address other factors in the student's environment, besides schools, that affect achievement, particularly factors determining the sense of being an effective person. The educational planner must analyze the effects of many social and psychological variables (motivation, work attitudes) that affect educational achievement and outcomes even when they are not as easy to deal with as books, classroom space, or teaching time. Other social and economic conditions determine educational outcomes after schooling is completed. Manpower planning helps, to some extent, to make education more relevant to employment and work demands, but there is never an exact match between the education and training offered in school and the demands of the labor market. Labor market requirements shift rapidly while education and training programs tend to be slow to change and adapt.

3.3 *Education, Work and Employment*

The U.S. Office of Education's *Annual Report* (1974) cites a current Gallup survey asking why people want education for their children. The first reason given is "to get a better job." The same concern is worldwide. This is reflected in surveys of parental expectations in El Salvador (1978), Botswana (Murerwa 1978), and Taiwan (Hsieh 1977), and in the study of the International Association for the Evaluation of Educational Achievement (IEA). The Faure Report (1972) proposed a shift in emphasis of educational planning away from aggregate economic objectives toward more specific social objectives, with major attention to employment. This concern seems to have arisen from the growing evidence that unemployment can persist even among persons with training which was designed to match economic requirements. According to Turnham and Jaeger (1971), the average education of the unemployed has been rising in less developed countries. With this problem in view, Edwards and Todaro (1972) have made a strong plea for educational investments complemented by parallel investments in job-creation activities.

Davis (in Harman 1976, and in Chapter 10 of this volume) reviews the limitations of formal schooling in preparing people for work. One problem for policy makers is that though formal schooling may have little relevance in preparing people for work and production, it does provide a powerful psychic return — expectation of enhanced opportunity — which impels parents and children to demand more formal schooling, however badly it prepares students for work, and even when school credentials will not secure attractive employment.

While planners and policy makers recognize that education has other aims in addition to preparing workers, there remains the problem of changing schooling in order to improve the relevance of education to work and production. One possibility is to bring schooling and work closer by blending the two in the education and training of workers. China offers the longest, though not continuous, experience in the blending of work and education. There were periodic trials of work education, beginning in the Yenan period (Seyboldt 1969), and running up to the recent past. The situation is in flux again. China, with mobilization centered around a broadly accepted ideology, has blended work, education, and political and social ethics in a way that seems to prepare workers for a certain range of work requirements. It is less clear that this success carries over to educating people broadly for advancing basic science and enhancing knowledge. Current public statements in *Jen-min Jih-pao* indicate a cyclic shift back to academic standards and away from emphasis on the merits of work experience.

China in recent years has had cyclic shifts, away from formal schooling and toward work experience, and then back toward formal education again. In the Western countries, where there is no mobilization based on an accepted central ideology, planners may have to try

other routes. One possibility is the redesign and restructuring of work and jobs to provide more psychic satisfaction to workers. Some of the possibilities along this line are covered in *Work in America* (O'Toole 1973). The many different programs for blending work and education are reviewed by Davis and Lewis (1975). Planners and program developers are beginning to realize that there are many different ways to train workers. They are also coming to realize that training does not guarantee a job, which also depends on how the labor market works.

Gordon (1972) states that underlying the approaches to labor market analysis and manpower planning are three distinct economic paradigms. The *human capital*, neoclassical model holds that employment problems arise from the individual worker's lack of competitive skills to fit an open labor market. These skills are developed through education and training. The skills and knowledge so acquired can be viewed as investment in human capital, in that they enhance productivity and contribute to marginal product, which is reflected in increased earnings. Policy and program emphasis is on training and other forms of human capital formation, to reduce structural unemployment.

A second approach focuses on the *segmented* character of labor markets, (Cain 1976). Piore and Doeringer (1971) refer to dual labor markets; Okun (1975) to a two-tier model; Bluestone (1970) to a tripartite market (core, peripheral, irregular); Levitan, Mangum, and Marshall (1976) to a multiple model (professional, mainstream, marginal, and submarginal). Labor markets are not unified and open, but divided, or segmented, into primary and secondary jobs. (This notion of rigid segmentation is challenged by results of the National Longitudinal Survey, Parnes, et al. 1973). Workers, even with education and training, are not necessarily able to progress from secondary jobs, which are poor, low-paid, and irregular, to primary jobs where pay and rewards are higher and more regular. Education and training may break down these barriers to mobility that are determined by social class differences, ethnic biases, and the use of selection criteria unrelated to skills generated by education and training.

Analysts who emphasize the segmentation of the labor markets emphasize the demand side of the market and tend to see training as only one of a larger set of policies. Training must be reinforced with job creation and development, worker support, job restructuring, design of new careers, wage subsidies, anti-discrimination measures, and compensatory aid. Only with these additional supports will disadvantaged workers attain mobility and break out of poor, secondary jobs. Public service jobs may be needed as employment of last resort. Surveys of labor markets in developing countries — India (1972), Dominican Republic (1974), El Salvador (1977) — show sharp division and segmentation between primary jobs in the modern sector and secondary jobs in the traditional sector.

A third school of analysis builds on the segmented labor market ap-

proach, but focuses on the more pervasive social, political, and economic structures governing labor markets. This *radical* (or *structural*) school claims that class differences and capitalist social organization account for the fact that workers from the lowest classes cannot get jobs, even when they have training. Their research emphasizes the effect of the class variable on outcomes which education is supposed to affect, such as employment and occupational status, promotion, mobility, and earnings (Bowles 1979).

The practice of educational planning does not yet appear much affected by radical analysis. In developing countries, public and private pressure for increasing formal education seem even less affected by radical criticism and proposals to cut down formal schools and thus deschool society. The criticisms may have made planners more sensitive to issues they once ignored.

4.1 *Planning and Implementation*

In educational planning the issue of *implementation*, as was the case with *participation*, arose partly from criticisms directed at the limitations of rational planning. Chapter 16 begins with a typical criticism by Warwick: "Conventional approaches to rational planning have led to an unnecessary and usually counterproductive dissociation between planning and implementation." Warwick then goes on to suggest a conceptual framework, organized around the concept of *transaction*, for developing the links between planning and implementation. Friedman's (1973) *transactional* approach to planning is similar in terminology, though the two approaches are by no means identical. Both begin with the same criticisms of rational planning. Critics have faulted the way rational models and planning methods portray the processes of policy analysis, planning, and decision-making (Braybrooke and Lindbloom 1963). In the organizational and political world, according to Lindbloom (1968), policy planning and decision making do not proceed in an ordered and reasoned progression toward a goal; the process is disjointed; matters move by fits and starts and through a slow building-up of small initiatives.

A second and related line of criticism points out that rational models often omit the organizational and political context and portray a process that is free of controversy and based on reason. Rational models portray a benign setting for decisions. Actually, say the critics, the amount of rationality in organizational processes is very limited, or bounded (March and Simon 1959). Conflict is omnipresent and often controlling in organizational and political transactions, and the final arbiter is not reason and evidence. Resolution comes out of a play of forces; it dribbles out of compromises; it is not optimal in any rationalistic sense. Plans are often not implemented, precisely because the rational view of the world is focused on abstractions and idealized situations and not on the social dynamics, the transactional context,

and the political processes which actually control whether a policy or plan ever has any real outcome.

The transactional analysts and organizational behavior critics of rational planning do more than simply point up limitations in rational planning approaches. Like the participatory planners, they suggest alternative approaches to planning. These prescriptions do not generally involve models and systematic procedures, but they do bring certain important social and dynamic situations to the attention of planners and policy makers. Warwick describes an approach called *transactional analysis* in Chapter 16, and DeHasse offers an alternative approach called *morphological mapping*, (USAID/Harvard Project, Paper 22). Both methodologies are designed to improve plan implementation. The Warwick approach emphasizes the dynamics of the planning and organizational process; DeHasse concentrates on analyzing the organizational structure and the assets required to implement an educational program.

5.0 *Ends and Purposes of Education: Values and Ideology in Planning*

Issues of teleology (ends and purposes), ideology (sociopolitical viewpoints), and ethics are central themes in planning theory. Questions of worldview and ideology, and underlying theories of social and economic development and education, are inescapable planning issues in all countries. Educational plans are imperfect unless they are attuned to the political context in which policies are formulated and plans implemented. Policy is not cast simply in the mold of technical formulas, but hammered out of contending social priorities, untested theories of social changes, and unspoken ideological positions. This leads back to issues of the ends and purposes of education. In the context of development these ends and purposes are shaped by political goals and ideologies which openly, or implicitly, shape the planner's setting of objectives. There is no politically neutral or objective planning approach, although systems planners sometimes attempt to leave politics outside their models.

5.1 *Goals, Purposes and Effects of Education: General Statement*

The topic of the ultimate purpose of education is vast, for it has been a preoccupation of civilized people for over three thousand years. In the earliest civilizations, systematic thought was given to defining and describing the goals, purposes and effects of education; while over the centuries, typologies, philosophies, and theories have been developed to explain the teleology of education. In the ancient Sinic civilization the purposes of Chinese education were to endow the noble class with culture and to illuminate the *Tao* (the creative principle of the universe), and the *tao*, the way and the path to virtue (Lao Tse 1972).

Later, the objective was to prepare the mandarins who headed the bureaucracy of the empire. In India the aim of education based on the *Upanishads* was to realize the unity of the universe and the individual (Myers 1963). Centuries before either Coleman (1966) or Jencks (1972) used simple regression models to study the effects of education, Indian scholars had decided the matter: the student learned one-quarter from his teacher; one-quarter from his own intelligence; one-quarter from his fellow students; and one-quarter from experience over time.

Plato in *The Republic* (Jowett translation, 1931) and Aristotle in his *Politics* (Jowett 1905) saw education linked to preparing people for the service of the state, with Aristotle's vision of preparing the practicing citizen different from Plato's vision of rule by good and wise men. Education was to adapt to the form of government and thereby contribute to the permanence of the constitution. Education was to train to full, rounded manhood the guardians of the state, and thus insure the survival of the *polis*. The deepest goal of education and life itself was the direct apprehension and awareness of *the good* (Plato 1931).

The Romans saw education as a means of studying and preparing orators and for developing the law. Under Diocletian, education was designed to train people to manage the bureaucracy of the empire. Through the Middle Ages and the Renaissance, education was designed to produce the courtier, the cavalier, the rounded man of state affairs and the man of culture. Milton stated that "a complete and generous education is that which fits a man to perform justly, skillfully and magnanimously all the offices both private and public of peace and war" (1911). Condorcet (1933) and Jefferson (1931) viewed education as having a strong link to politics and government, but their concern was with education as a means of preparing the people for self-government rather than preparing an elite to govern. Brubacher (1947) offers an excellent review of the development of education to serve political objectives. Schools have been used to serve the political spectrum, from monarchy to democracy, from right to left, from earthly to both utopic and heavenly regimes.

In the eighteenth and nineteenth centuries, educational philosophies and systematic theories of pedagogy were beginning to be developed. From these developments came comprehensive and systematic statements of the purposes and effects of education and schooling.

Rousseau (1916), as had Indian sages centuries before him, saw the aim of education as the development of the whole person (child), and this included physical, moral, and intellectual development. Pestalozzi (1931) emphasized the wholistic nature of the effects of education when he defined the education process as "the natural, progressive and harmonious development of all the powers and capacities of the human being." Herbart (1898) also emphasized one ultimate aim which was to fashion a moral character based in a happily integrated, virtuous personality.

Modern educators have been more the typologists and list-makers.

Spencer (1936), at the beginning of this century, prepared one of the first of the great lists of the multiple goals of education. He stated that education must prepare for complete living, and the knowledge most useful to that end would include:

— Education for self-preservation, which was a knowledge of nature and physiology.
— Education for indirect self-preservation. This knowledge prepared people to make a living by the production, preparation and distribution of commodities.
—Education for rearing a family, for raising healthy and wise children and providing physical and moral training, knowledge and the laws of life.
—Education for inculcating the functions of a citizen through the learning of history, sociology, government, but above all through the study of physical science which was ever superior to social science in Spencer's view.
—Education for relaxation, pleasure and amusement, and for the wholesome enjoyment of leisure hours. Aesthetics and the arts provided the base, but even here, Spencer reminded his readers that mathematics was central to music (a point the Greeks had made much earlier when they joined mathematics and music in the fourth subject of the quadrivium).

Spencer's list was followed by a spate of lists and typologies, and the flow has continued to this day. In 1918 the National Education Association (NEA) enunciated the Seven Cardinal Principles of Education. Originally, these were to be the principles of secondary education, but they appeared sufficiently relevant, yet broad, to apply to all levels of education: (1) Command of the Fundamental Processes; (2) Health; (3) Home Membership, (4) Vocation;; (5) Citizenship; (6) Leisure time and (7) Ethical Relationships Bobbitt (1924), through activity analysis of the curriculum, developed a list of ten activities, which ranged from Language Activity to Vocational Activity, an activity termed by Mr Bobbitt, "the labors of one's calling." In 1937 the NEA enunciated the Ten Functions of Education More recently the Minnesota Advisory Council (1977) stated six goals of education: Intellectual discipline and knowledge acquisition; citizenship and civic responsiblity; social development and human relationship; moral and ethical character; self-realization, and finally, economic independence and vocational opportunity. Humankind's conception of the purposes and effects of education have differed through time and place, and the ends, as stated, have varied according to the culture, the policy, the social structure, and the economy. Yet there have been many common threads running through conceptual schemes of the teleology of education, and we will return to these common themes in a later section.

5.2 *Typologies of Philosophical Purpose in Education*

There have been recent attempts to develop typologies around the philosophical aims which are attributed to education These typologies of theories and philosophies are built around varied expectations as to the societal ends of education. Brameld (1955) viewed the end of education as the offering of alternative choices to its recipients. He typologized these choices according to an underlying philosophical orientation:

The *Essentialists* saw schools as serving the conservative choice. Education was to be a conserving force in society. Schools were to be grounded in the essentials, the tried and tested facts, and the purpose was to conserve and preserve the culture and society.

The *Progressivist* view was that education should serve the liberal choice, and thus promote beneficial change. The primary purpose of education was to teach people to analyze, to criticize, to select among alternatives, and to venture toward the development of solutions.

The *Perennialist* view was that education must serve the regressive choice. Education should emphasize the eternal principles of truth, goodness, and beauty which are timeless and therefore perennial. Schools should revert to the earlier teaching of how these eternal laws and principles are deduced from circumstances.

The *Reconstructionist* sought the radical choice through education. The culture should be under the control of the majority of the people, who are sovereign and who must determine their own destiny. Ends are attainable through the development of powerful means which are possessed, though perhaps latently, by the people. Education should teach people how to exercise power toward these ends and how to seize power if need be

A somewhat similar typology was recently offered by Simmons (1974), who used categories similar to Brameld's *Progressivist* and *Reconstructionist*, but added, as a third theoretical basis for viewing the purposes of education, *Human Capital theory*, which views education mainly as producing cognitive learning that leads to enhanced economic performance This so-called theory has tended to dominate recent thinking in education and development, and also the planning of education for development. The human capital approach emphasizes the cognitive effects of schooling and their presumed effect on raising productivity and earnings In Simmon's typology the human capital theory contrasts with *progressive theory*, which stresses noncognitive learning and the development of shared preferences toward social improvement and democratically mediated change, and with *structural theory*, which centers on the basic contradictions of industrial societies. Given these social ills, the end of education is to promote sweeping and radical change.

5.3 *A Comprehensive View of the Ends and Purposes of Education*

The many different goals and purposes of education have been stated in single generalizations, in lists of goals and desirable effects, and in typologies. A general goal statement serves best to animate and mobilize people by giving them a clear objective, a general guide, and an inspiring watchword. It goes beyond the *coup d'oeil* wisdom of the epigram or slogan, but it does not provide as much guidance for the educational planner as the more detailed lists. Even with such lists it is not simple to translate purposes into plans. The philosophically organized typology is of modest use for the planner, although it may provide some crude framework to organize and simplify complex sets of educational purposes. The problem is that the typology takes away the flavor of original goal statements and fails to capture the range of educational purposes. It also imposes the mold of the typologist on profound, subtle, and perverse expressions of human thought. All typologies impose their own schema, and the one sketched in Table 2.1 is no exception.

There is no easy way to list and arrange the many purposes and effects of education that have been articulated in the four millennia since the early civilizations. Two dimensions are useful in organizing the list:

First, the purpose or effect is stated with respect to an individual learner; or else it is stated in terms of the effect on a large group, family, society, polity, or economy. An additional dimension that is sometimes useful is whether the end is *societal* (realizable in the existing society or similar one), *utopic* (aimed at a more perfect society to be created), *transcendental* (beyond human society and life on earth).

Second, the purpose or effect is a final or intrinsic one, which in this case means it is sought as an end in itself; or the goal is medial, which means it is sought as a means to some more final goal. Statements are often mixed in this respect, as for example, "Education develops cognitive learning which enhances production."

5.4 *Selecting a Coherent Set of Goals, and Planning for the Implementation of Them*

Table 2.1 attempts to systematize only a sampling of statements about the purposes and effects of education. The table is based on a few hundred of the thousands of major statements that have been made in different countries over the past four thousand years. The political or social leader of any country has a staggering task in selecting a set of relevant and coherent goals for the education system of his country. For many — and Nyerere (1967) represents this view, as would Mao (1971) — no goals for education can be set until there is a clear idea of the society that is to be built, in part, through education. Until the goals are set, the development of a plan is not possible.

Table 2.1 Statements of the Purposes, Goals, Effects of Education
(These statements are sometimes quoted and sometimes paraphrased.)

Goal of Education	*Individual*	*Group/Society*
1. Contributes to individual or group survival.	1 Education aids the individual in his struggle for survival Spinoza, *Tractate* 1a. Education for self-preservation was the first purpose stated by Herbert Spencer	1 "...if we are to survive, if we are to become viable in our own habitat (from which there is no retreat), it will be by force of new ideas and values, of a radically new mythology. We stand therefore in collective need of education." Wheeler
2. Harmonious development of individual, society, or universe	2 "The ultimate aim of Education (the *Summum Bonum*) is the development of all the innate faculties of an individual, leading to an all-round harmonious development of his personality " Rabindranath Tagore	2 Education helps to perfect the realization of the unity of all, the Supramental. All beings are united who have been separated by the world Sri Aurobindo
3. Makes individuals or societies more moral, ethical, virtuous.	3a End of education and life is happiness through moral and intellectual virute. Aquinas b Highest good is perfection of spiritual nature (through education). Welton	3. "Education is for the moral and political uplift of society." Jefferson
	Transcendental The fundamental purpose of education (India) was the full, self-conscious awareness and realization of the intimate link between individual self and the universal spiritual reality, and the dependence of the former on the latter. Myers	
4. Transmits and conserves the funded wisdom and culture.	4 "La fin supreme de l'education c'est la culture . la formation de l'esprit " Condorcet ("The Great end of education is culture . . the formation of the spirit.")	4. The primary business of *Education* ... is to make available in the life of the coming generation the funded and growing wisdom and knowledge. Beard

(Table 2.1 continued)

Goal of Education	*Individual*	*Group/Society*
5. Teaches how to learn and acquire knowledge through reason and science.	5. Worthwhile studies are not so much those that impart knowledge as those that teach the individual how to learn. Condorcet.	5. Purpose of Education — The only thing that makes the human race worth perpetuation is that thereby rational ideas may be developed and the rationalization of things furthered (through scientific investigation). C.S. Peirce.
6. Provides knowledge, skills, and arts useful for production of goods and services and earning. Economic ends.	6 Condorcet, when setting out the three ends of public instruction, stated the second as "Give to each the technical knowledge and competence required in a given profession " Vocational competence for economic opportunity was mentioned as the fourth of the Seven Cardinal Principles the 9th activity of Bobbitt's curriculum, and the fourth of the six goals of the Minnesota Advistory Council It is the central tenet of human capital theory 6a "Education is intended to make a person better able to do whatever job is important or profitable both to himself and to his country " Nyerere	6 "The greatest good (of the people) requires that they are instructed in general competently to the common business of life .. with information on the useful arts." Jefferson
7. Shapes knowledge and attitudes for social and political living.	7a "Through education, the individual (comes to) know the working rules of society " Beard 7b "Teaches wholesome attitudes toward order and change " Beard 7c. "Effective education is self-education through experience, putting ideas to the test of practice, and through criticism and self-criticism." Mao	7. "Education preserves the multiplicity of the component elements ... by creating a homogenous medium within which conflicting parties can measure their strength." Mannheim "Fosters social goals of living together and working together for common good." Nyerere. "Teach all citizens the necessary knowledge to exercise their common rights and the possible enjoyment of independence " Condorcet. "Establishes the bond of friendship between man and man." Gandhi.

(Table 2.1 continued)

Goal of Education	*Individual*	*Group/Society*
8. Aids self-expression and leads to a self-actualization and freedom.	8. "The character of good education is that it doesn't overpower man, it emancipates him." Tagore Freedom (through education) means intellectual initiative, independence of observation, judicious invention, foresight of consequences and ingenuity of adaptation to them " Dewey "Fundamental purpose of education the liberation of minds " Beard "Education means freedom from all manner of servitude, even in present life " Ghandi	8. "Education helps (citizens) to exercise common rights and preserve and enjoy freedom." Condorcet "The main objects of science (from education) are freedom and happiness of man." Jefferson "Universal education will lead to democracy and to organized self-expression and self-governance " Jefferson "Attempts to settle ideological questions by administrative orders (command.sm) or coercive measures are not only ineffective but harmful " Mao.
9. Equity and Equality	9a. "The phrase 'equality of opportunity' is often used with respect to the relationship between education provision and social mobility " Coxon and Jones (1975) 9b "Only when we are clear about the kind of society we are trying to build can we design our educational system to serve our goals " (Goal is a socialist society) which is based on three principles equality and respect for human dignity, sharing the resources which are produced . work by everyone and exploitation by none. Julius Nverere (Arusha)	9a Paraphrase from Condorcet There are two types of inequality: 1) The natural cannot be remedied through education 2) Social or moral inequality is the more fundamental (and more abhorrent), and it can be remedied through education which can bring equality in wealth, equality in profession, and equality in instruction. 9b (Education) . ."It should serve the interests of the toiling workers who constitute over 90 percent of the country's population, so that over time it will become their culture." Mao

(Table 2.1 continued)

Goal of Education	*Individual*	*Group/Society*
10. Education for enjoyment and worthy use of leisure.	10. It is the fifth aim mentioned by Spencer Education for relaxation, pleasures and amusement, to fill in leisure hours. It is the sixth of the Seven Cardinal Principles. Education for leisure is the sixth of Bobbitt's activities.	
11. Education is an end in itself.		Paraphrase: 11 Education as an end in itself: Dewey stated that the test of all the institutions of adult life is their effect in furthering continuing education. The government, businesses, art, religion, all social institutions have a purpose . . . to set free and develop the capacities of human individuals. The aim of education, therefore, was education itself. Education had no aim beyond itself.

In situations where there is a less structured set of political and ideological goals which will predetermine the selection of educational goals, the variety of possible purposes and effects of education complicates the problem of sorting out educational goals. In some cases the goals may conflict, so that in aiming for one, another may be sacrificed. Education for developing cognitive knowledge and skills that will enhance economic production (goal 6) may conflict with education for full and harmonious development (goal 2), or with education for freedom (goal 8), or education for equity (goal 9). It is not unusual for a plan to state several broad goals for education, some of which conflict. Furthermore, the articulation of the goals may even highlight the conflict and thus complicate the political choice for the political leader or the planner. These issues are discussed in Chapters 8, 9, 12, and 14. There are no methodological tools for resolving conflicting goals based on conflicting values, attitudes, and ideologies. Such issues are simply raised and discussed in this volume; they are not resolved.

Even when goals can be stated clearly and marshaled into coherent and consistent sets, the means of pursuing educational goals through policies, programs, and activities may not be easy to specify in a plan. Although there may be acceptance of ends and purposes and a general agreement about likely effects, there will be alternative means of pursuing the ends and accomplishing the outcomes. The planner can only lay these out as clearly as the situation permits. There will, over time, appear constraints, and in some cases actual barriers, to plan fulfillment that cannot possibly be foreseen. This applies *a fortiori* to long-term planning, when the future can only be dimly glimpsed and there are broad conflicts in the present. This is dealt with in Chapter 14, which discusses the situation where two *good* purposes are in conflict and there is *no* righteous choice.

5.5 *Goals for Education in Developing Countries*

Given the pressure of poverty in developing countries, it is reasonable that a first goal for education is that of providing cognitive learning in the form of knowledge and skills to enhance productivity and contribute to economic growth. A second goal is to foster a sense of nationhood, to promote patriotism and nationalistic values. Allied to this is education to reduce dependence on other nations and hegemonies. A third goal may be to acquire and to preserve the central culture (sometimes subcultures) of the people of the nation. A fourth goal would be to develop certain beliefs, values, and ideological principles which are central to the prevailing political, religious, or philosophical system. Of recent and increasing importance is the goal of fostering through education a more equitable distribution of goods, services, earnings, and wealth. Not prominent in the goal statements of poorer developing countries, but present in the thinking of some in-

dividuals, is education for promoting self-actualization, self-satisfaction, and personal independence, and education to develop human sensitivity and understanding of others and to promote internal social harmony. These goals, chiefly the first four, are central in almost all developing country plans and goal statements.

As education goals change, approaches to educational planning also change. Educational planning once dominated by economic growth and human capital approaches, must now, examine deeper and broader social purposes. The problems of formulating these purposes into plan goals are discussed in Chapter 12. A nation educating people for self-reliance, like Tanzania, must state its plan goals differently. Sometimes there is less clarity and coherence in the statements. Economic growth, and the pursuit of it by developing manpower through education and training, seem to be a straightforward framework for the planner's task. It is less clear how education is planned to develop self-reliance, to promote equity and equality, to foster a spirit of free inquiry and self-actualization, while at the same time maintaining allegiance to a given culture, ideology, political or religious dogma. The human spirit and intellect, when expanded and liberated by learning, can soar to great heights, and from these heights a far wider panorama of possibilities can be glimpsed. Educators cannot control this nor can planners forsee it.

Other different over-all strategies of social/economic development are beginning to bear directly on educational planning. The distinction between *top-down* and *bottom-up* planning has received considerable attention since the late sixties, and implications for educators are beginning to be drawn, particularly for the less traditional *bottom-up* approach (Hudson and Davis 1976).

In sum, educational planning theorists are being forced to come to grips with philosophical conflicts — growth vs. equity, local needs vs. national needs, self-reliance vs. dependence, the temporary fix vs. structural reform, spiritual values vs. materialistic progress . . . The influence on planning practice is less clear, though the concerns are discussed. Resolution of these conflicts begins at the level of politics, but it also hinges on the design of educational processes, the social commitment of individual teachers, and the social institutions which employ (or discard) graduates of the system. Planning theorists no longer view the school as a closed system or separate entity, though it continues to be separate in fact and treated as such by the educators themselves. Educational planning may come to be seen more realistically as a process woven into the larger fabric of social forces, to preserve the past, to change the present, or to build the future. Often these three aims are in conflict in one and the same country. Resolving this conflict is not within the technical repretoire of the planner, and he may not have a social mandate to do so. Still, the planner is as capable of dealing with value and ethical questions as any other person, no more, no less.

CHAPTER 3

The Social Demand Approach to Educational Planning

RUSSELL G. DAVIS

1.0 *Introduction: The Three Approaches to Education Planning*

Economists who write about educational planning claim that there are three basic approaches to educational planning at the "macro" level: Rate-of-Return Analysis (applied at school system level), Manpower Planning, and Social Demand Planning (Blaug 1967; Rogers and Rucklin 1971; Psacharopoulos 1975). At the level of project or program planning there is a fourth approach; a set of methods built on assessment and cost-effectiveness analysis. Planners (Schiefelbein and Davis 1974), and economists who comment on planning (Psacharopoulos 1975), agree that rate-of-return has not been used as the exclusive basis for any educational plans. Rate of return has been combined with manpower planning in policy planning (Dominican Republic 1974) and in research and development studies (Puntasen 1973 and Thias and Carnoy 1973). The applications of standard manpower planning are reviewed in Chapter 4 of this volume. It is more difficult to identify clear-cut applications of social demand planning. Among educators, planning has not traditionally been based on either social or economic demand considerations. Education has been taken as intrinsically good in any amount, and planners have addressed how best to offer the most of it. This approach might be called *pedagogical planning*, the planning of curricula, instructional methods and support.

Academics apply the term Social Demand planning to all forms of educational planning which are not based on, or referenced to, economic growth goals or economic cost criteria. Manpower Planning and Rate-of-Return analysis are more clearly economic approaches to educational planning. They are based in human capital theory and neoclassical economics. In manpower planning, the requirements for educated and trained workers are derived from economic growth targets. These manpower requirements targets are used to set plan targets for the education/training system. In investment comparisons based on rate-of-return analysis, the net earnings of workers at suc-

cessively higher levels of education are discounted to present value. Or an internal rate-of-return — the interest rate which equates the earnings (net of costs) of workers at the two education levels — is estimated. Rate-of-return analysis is applied to evaluate education as an economic investment (social or private). The manpower and rate-of-return approaches can be argued, for and against, in economic theory, but at least there is a body of theoretical propositions to refer to. Social demand has no such basis in social theory. The term is vague. Theoretical backing is missing. Applications which might be called social demand planning are a mixed lot.

2.0 *Social Demand Approaches to Planning: Three variations on a Term*

The term Social Demand is applied to at least three different forms of educational planning: (1) when plan targets are primarily (but never completely) expressed in demographic terms — e.g. "Primary education will be provided for 2.3 million children, age 6-11," (2) when plan targets are based on national (international) goals warranted by social ethical value; e.g. "All citizens are entitled to basic education;" (3) when plan projections are based on analysis of aggregated private demand for some level and type of education; e.g. "Given these income levels, this tuition level and this scholarship availability, demand for higher education will yield an enrollment of . . ." There are other forms of planning which might be called social demand planning, but it is impossible to describe all the variants of this catch-all category. Other factors influence the demand for schooling, in addition to the main three influences of demography (population growth), economic demand (manpower requirements and rate-of-return), and aggregate private demand influenced by educational costs, income, scholarship assistance, and tuition policies. Among these other influences are shifts in cultural norms or changes in the perceived value of higher education. Enrollments have enormously increased as some cultures or subcultures have placed a much higher social value on formal education. Enrollments may also increase as the notion of higher education as an exclusive preserve of intellectual elites changes, and the ideal of mass entitlement and aptitude for some form of post-secondary education is adopted. Open admissions, in place of restrictive examinations, may be the institutional policy through which this change in values toward higher education is accomplished. Political manifestos and mobilization for education, and even physical accessibility and geography, may affect attendance. Conceivably, all these influences would be analyzed under social demand planning.

The three basic forms of social demand planning have been applied in different settings. The second form, national social goals, was common in developing countries in the past two decades (Davis 1966). The third form, consumer demand analysis, is common in the United

States. Pure demographic projection has rarely been used, even in developing countries. Behind what may seem a pure demographic goal is a social goal, and hence the first form is usually a simplified version of the second form.

The third approach is applied primarily to the planning of higher education and to private and proprietary forms of secondary education. The first two applications are almost always limited to planning first-level education and mass literacy. Only occasionally is the approach applied to secondary education and almost never to higher education. In summary, the first and second forms are more often applied to the planning of basic education in developing countries, and the third form is applied more often (but not exclusively) to planning higher education in the United States.

Social demand planning is often mentioned in the literature of planning and economics of education, but rarely is it described in detail. The reader does not receive much help in understanding the term, its conceptual underpinning, and its practical applications. Little has been written on social demand planning, because the approach, first of all, is a mixed bag; secondly, it lacks a satisfactory theoretical basis, and finally, it uses simple methodologies borrowed from many fields. Only a short chapter is required to describe the methods of social demand planning and to report on how the methods have been applied in the recent past.

The future of social demand planning, or some more systematic variant of it, may be more promising. The lowered prestige and diminished respect for rationalistic methods of inquiry and planning, and reduced confidence in economics as an exclusive framework for explaining or planning development, may turn educational planners to new approaches. These approaches may be more similar to social demand planning than economics-based planning. Before this can happen, however, the concept will have to be sharpened considerably; a more adequate theoretical backing for the approaches will have to be developed; and the methodology will have to be considerably extended and elaborated. When all this happens, the planning form that results may not resemble what is currently called social demand planning. It may be more of a synthesis in which economic goals, social goals, and political goals are woven into one broad framework. Education, and other social service and human development activities, such as health and welfare, will be planned within this broad and encompassing framework. What this broad framework will be is difficult to specify. One possibility is outlined in Chapter 14, which sketches a broad ecological approach for planning. Specifics as to how any new, broad perspective will serve to structure social planning have still to be worked out. The criticisms of current economic approaches (Henderson 1978; Boulding 1968, 1971; Meadows 1972) are well developed and persuasive, but they offer no guidelines for designing a new systems

framework for social planning. Yet, the all-encompassing model has long been the planner's dream (Davis 1966).

3.0 *Demographic Target Setting: The Simplest Variant of Social Demand Planning*

In the simplest form of social demand planning in education, the educational plan targets *appear to be set* solely on the basis of population/enrollment projections. Educational plan targets are set by estimating the numbers in an identifiable population group (usually most simply defined by age and sex characteristics) who will receive a given amount of schooling or "education." The amount to be received is usually crudely defined on the basis of educational attainment levels, or number of years of formal schooling to be completed.

The heart of the method is population projection. Such theoretical and methodological issues as arise in this simplistic version of the social demand approach are those that arise also in demographic analysis and population projection. This simple variant of social demand is also sometimes called *Demographic Based Planning* (Davis 1966; Schiefelbein and Davis 1974). Several variants of the basic method are given in Davis (1966) and Cheswas (1969), and in similar books on educational planning based on the methods used twenty years ago. One version of the demographic planning model would be:

A. The population group to receive the given level and type of education is specified, e.g. males and females, ages 6 to 11, to receive primary schooling.

B. The number in this 6-11 age group is estimated on the basis of a census or survey.

C. The number in this age group *and in school* is established by census or survey.

D. The gap in coverage is estimated by subtracting C from B.

E. The population coming into the age group in each succeeding year of the plan period is projected. Additions due to demographic growth are estimated.

F. The plan is constructed on the basis of school facilities, teachers, and other inputs sufficient to cover:

—addition necessary to accommodate demographic growth (E)
—addition necessary to reduce the gap (D)
—addition necessary to replace losses and maintain system standards.

In those few situations where it has been applied in its classic and simplistic form, the approach is sometimes said to be free of "nor-

mative criteria" (Barrios 1979). This statement could possibly be accurate if the projection of an educational enrollment target for a plan is based on the mechanistic analysis of a trend, which is then extrapolated. There may be a few instances of planning where this seems to have been done, but in reality there are few such simple situations. Normative considerations, such as reference to ethical social goals and standards, lie behind almost any form of social planning. Normative considerations can usually be discovered under even the most rudimentary and mechanistic population projection. It was stated earlier that even in the simplest variant of social demand planning, targets are rarely set only on the basis of demographic analysis and projections. The explicit reference to the normative basis may be left out of any given plan discussion of goals and objectives, but an ethical premise supports the plan, even though norms are not stated as clearly as they are when the second form of Social Demand planning is applied.

4.0 *Plan Targets Are Based on National Goals Warranted by Ethical Social Values*

The targets specified in most educational plans in developing countries are usually based on national (international) goals which have their justification in political, social, and cultural goals derived from ethical social values. "Based on" may mean that national goals are adopted directly into a plan. These goals, which state that citizens of the nation are entitled to basic education or literacy, are taken directly from national goal statements, which appear in a national plan, a national declaration, the Constitution, or the Organic Law of Education. These goals are warranted by a social value which holds that education is a fundamental right of humans. The goal and its ethical warrant may be developed within the country, or taken from international statements of goals and social ethics In an accompanying chapter, Welsh discussed this process.

The international goals for education are adopted by developing nations from declarations on human rights and entitlement to education. Such declarations were made at many international meetings, at Bogotá, Bandung, Santiago, Punta del Este, and Addis Ababa, held under UN and other international sponsorship in the late fifties and early sixties. Nations sent representatives (chief executives or Ministers of Education) who signed declarations which affirmed that their citizens were entitled to a free, compulsory, and complete basic education These declarations were adopted as national goals and incorporated into national educational plans.

Curle (1964), in the planning of the World Campaign for Universal Literacy, uses the UNESCO objective of reducing by one half the number of adult literates in the world. The projected number of new literates to reach this target for Africa, Asia, and Latin America is set

(a total of 330 million new literates); a rough cost per literate for each area is made; and a total cost for the world campaign is derived ($1,883 million), UNESCO (1962). The plan superficially appears to be a simple demographic projection of the number of participants, multiplied by a rough unit cost to give a total cost; but the goal is warranted on the basis of international agreements based on the ethical value that all people are entitled to basic literacy.

The underlying planning model, which was developed on the basis of national (international) goals rooted in social values, was a simple one:

— Goals were set in terms of the number of children (adults in the case of literacy) who had a fundamental right to be educated. This fundamental right was generally accepted as a given, and not logically derived within social ethics. Other social philosophers had long before developed that argument. For Condorcet (1933) the prime aim of education was: "to offer to *all* individuals of the human race the means of providing for their needs, of assuring their welfare, of knowing and exercising their rights, of understanding and fulfilling their obligations ..."

— A time period was established within which the goals, or targets derived from the goals, were to be met in whole or in part This gave the social goal approach a facade of rational planning This was further enhanced by the third and, final step.

— A total cost for the enterprise (reaching the targets) was estimated on the basis of unit costs multiplied by the target numbers. The unit cost estimates were usually set without benefit of experience, data, or analysis.

Educational planning based on this form of Social Demand was criticized on several grounds:

— The crudity and imprecision of the methodology were criticized. More systematic and consistent methods for projecting the target estimates, and for costing, were specified by Cheswas (1969) and Davis (1966). Improved methods were developed, applied, and diffused by the United Nations, UNESCO, the Organization for Economic Cooperation and Development (OECD), the International Institute for Educational Planning (IIEP), the United States Agency for International Development (USAID), and the World Bank McGinn (1979) reviews these planning schemes in a study conducted as part of this project.

— The lack of systematic reference to economic goals, the lack of a systematic theoretical basis in economics, and the occasional misapplication of economic analysis methods were criticized by economists, who came increasingly to dominate the field of development. The majority of these critics were neoclassical economists working within the framework of the rapidly developing doctrines of human capital theory.

— Despite the many lofty statements of noble goals, the poor coun-

tries failed to reach general economic and social development goals, either in output terms or in distribution. The day of general economic development and universal schooling did not come. Target dates for development passed, but development did not come to most poor countries. The countries failed to reach education and literacy targets. World literacy campaigns were waged, but with rapid population growth the numbers of illiterates actually grew, and the campaign was perceived as lost. Radicals and Marxists attacked the plans as social pretense.

Later, the relationship between education and economic growth was seen to be more complex than the human capital theory had portrayed it. The regression models used to analyze educational inputs and outputs and to relate education to economic growth were finally understood to be simplistic. A whole host of critics was ready to attack general development plans and planners, and educational plans and planners, whether they used economic demand or social demand.

Social demand planning, as exemplified in the first two approaches, was vulnerable to attack from all sides. There were those who attacked this form of planning as part of a critique of rational planning approaches generally (Linbloom 1968; Friedman 1973; Warwick 1979). Social demand planning was not very competent rational planning, but it made a pretense of rationality, and this form was criticized. Radical critics of schooling attacked the planning approach and the formal schooling models imported from the Western countries and imposed on developing countries (Goulet 1971; Illych 1971). Marxist political economists attacked the notion that education, as offered within capitalist social and economic structures, could contribute to production, and that education could contribute to the distribution of income and social benefits. Bowles and Gintis (1975) and Bowles again in a project paper (1979) represent this critique.

No one really defended the approach. Economists and planners who came out of the human capital camp to dominate the field did not so much attack the social demand approach as ignore it, and propose instead the more attractive and plausible economic-based planning (Harbison and Myers 1964; Blaug 1967; Bowles 1969). Even practitioners of social demand planning did not defend their work. They learned the human capital jargon, or changed their views and joined in the critics' chorus (Schiefelbein and Davis 1974).

People in the planning offices in developing countries simply went on doing social demand planning and improving the methods insofar as they could be improved. Planners improved their work in demographic analysis and projection methodologies. Improvement was mainly in the applications to planning. The basic theory and methods of demographic analysis and of population and enrollment forecasting were not extended or improved dramatically in this period, although the methodology of demography was steadily advanced (Keyfitz 1968; 1974). The planning models used by Schiefelbein and

Davis (1974) in Chile represent the incorporation of demographic projections into comprehensive planning models. (These models and methods are described in detail Volume II which offers separate chapter units on demographic forecasting and enrollment forecasting.)

Little could be expected in the systematic improvement of planning based on national (international) goals for education. The epistemological underpinning of the goal statements, as they were incorporated into planning documents, could be made a bit more rigorous and logical in form. Examination of national plans during the years 1960-1979 indicates that plans did improve over the period in scope and coherence. (A comparison of plan statements of the middle sixties, Malaysia, with plan statements of the middle seventies. Saudi Arabia, is shown in the Appendix). Much more was done to improve the theory and methods used in planning for improved access, coverage, equality, and equity.

The issue of equality and equity in the distribution of education and economic opportunity, and the underlying implications of these issues for policy pla ners, are covered by Prysor-Jones and Snodgrass in accompanying chapters of this volume Their studies and those of other analysts indicate that poor countries have failed to improve equality and equity in the distribution of education and income. Bowles has attributed a part of this failure to basic faults in the plans, policies, and programs developed in school systems modeled on those of Western capitalist countries (1979) Despite evidence of the failures of education to improve the distribution of income and wealth, technical assistance specialists and policy planners from both rich and poor countries have continued to plan education as a means of improving social equity. Attainment of equity through education may be as elusive and distant a goal as the attainment of political utopia, rapid economic growth, and the disappearance of sin and sickness, but the goal was being pursued. Pursuit of the goal of equity in education (usually through universal schooling) was cast in the following terms:

a) *Education as a Basic Human Right.* This was the earliest approach in the developing countries The prime source and sponsors in the early years after World War II were the United Nat'ons and its agencies The notion was that every individual was entitled to a given level of basic education and literacy The idealistic view that all citizens of all countries were entitled to education as a birthright came into conflict with the view of analysts and planners that many developing countries did not have the resources to provide universal schooling immediately. Planners did not prove their case that universal schooling was impossible if countries were prepared to sacrifice enough, Davis (1966). Planners supported the idealistic view in plan goal statements, and the practical view in plan budgets.

Human capital approaches, to a large extent manpower analysis and to a lesser extent rate-of-return, undermined the planning goals of pro-

viding universal education as a matter of basic rights. There were many reasons why this happened. Economic development goals, as articulated by the human capital experts, seemed to be practical and attainable. It was an era when practical people believed that distant goals could be reached through small steps. Put enough small steps together and great goals could be attained. But the steps must be taken one at a time. Universal education could not be provided immediately. Social right and entitlement notwithstanding, all people could not receive their entitlement. Given the enormous numbers to be educated, and the pitiful revenues and competing needs, planners and policy makers assumed, possibly wrongly, that national decision makers would not allocate sufficient resources to a fine but impractical goal of universal education. A more self-interested rationale was needed — education would bring development, which would, in turn, increase resources and thereby bring education for all.

The notion wasn't so much "trickle down" as it was — sacrifice, wait, and get more later The basic idea was that of education as an investment Delay seemed reasonable, given the impossibility of providing universal education to vast, scattered populations, with only a small seed stock of educated people available to teach and reproduce their own kind This analysis may also have been wrong, but only in China was mass education accomplished. Human capital theory as a basis for human resource development planning seemed to make sense to many who are now critics (Bowles 1979) Worse, some planners who adopted human capital theory and methods and based education plans on manpower requirements targets may not have been wholly persuaded by the theory. Davis (1966) recommended that planners follow the human capital approach to planning, mainly because it would get politicians to allocate resources to education for economic growth, when they would not otherwise have done it for social development reasons. By the end of the 1950's social planning based on basic human rights had faded, and human capital had won the day. Marxists, along with radical and de-schooling critics, had not yet taken the field; or they were out there kicking the ball around the field under other colors, mainly human capital

b) *Basic Needs* A more recent and very similar variant of *basic human rights* is that of *basic (human) needs* More than a 'wheeze' (slogan), but less than a new approach, the basic human needs approach has been pushed ahead primarily by practitioners working in development, credit, and technical assistance agencies — The World Bank, the United Nations, and the International Labor Organization. Under this rationale, education is planned and provided as one of a set of general human needs (food, shelter, security, gainful work, education . . .) Literacy and basic education are to be provided to satisfy a minimal level of need and to help attain other minimal needs such as employment and food There have been some attempts to work up, if not a theory, then at least a consistent approach (Kocher and Cash

1979; and ILO, Geneva 1977). The basic needs focus has also been exemplified in the form of mandates issued by the U.S. Congress to USAID. This mandate required that USAID give priority to identifying the poor majorities in developing countries and meeting their basic needs. The approach has also been implemented in the planning formats which agencies are supposed to follow in analyzing problems and identifying clients and their needs. USAID developed a set of standard questions. There are also forms that are used by United Nations agencies as well as the forms and mission procedures of the World Bank. Also, special mission and task groups have been set up within the agencies to address basic human needs, or social needs, and the special needs of the poor.

Basic human needs has a client, not a program, focus. It has features of the older *basic human rights* approach, and the underlying justification of both is moral and ethical In both there is not a great deal of teleological analysis, i e. examination of basic social causes and ultimate purposes of mankind. *Basic* in Basic Needs means that which is necessary to stay alive Also, there is not much social and ethical reasoning advanced in support of either approach. Providing schools for those who "need" them is accepted as a good thing to do. There is no agonizing over the challenges raised by de-schooling critics (Illich 1971).

c) *Basic Equality and Equity* The issues related to this topic will require a deeper and more extensive analysis than will be given in this chapter. The treatment here will be brief. Equality and equity will be covered as a broad ethical issue in Chapter 8 Chapter 9 examines the economic measurement of equality in the distribution of education and income The equality of the distribution of any good can be measured. Equality is thus a descriptive and neutral term which is defined by the shape of a distribution Educational planners deal with equality in the distribution of educational services in a given population

Because there is a relationship, both theoretical and empirical, between educational attainment and subsequent earnings, social planners may also be concerned with the distribution of earnings or income. Snodgrass analyzes the equality of distribution of both education and income . The Gini coefficient is the indicator most often used in current social analysis to measure equality in a distribution. The Gini coefficient is a single index number which reflects the extent to which the share of some "good" thing (education, land, income) matches the share of the population, for instance, 10% of the population has 10% of the income, or receives 10% of the educational services. If equality were perfect, and it is not, then the cumulated share of the good thing would increase exactly as the cumulated share of the population. Theoretically, the Gini coefficient goes from zero (perfect equality) to 1 (perfect inequality). Measures of distributional equality are used by planners to assess the equality of access of all the population to education. Plans and policies can then be designed to improve equality by

providing more access to groups who lack it. Thus, the Gini would be used to diagnose a situation of inequality, and a plan goal might then be to improve the distribution of education to deprived areas or population groups.

The idea of equality may include measures of the quality of the inputs, outputs, and even outcomes of education. Input equality is often assessed by comparing per-pupil expenditures. Equality in the output may be assessed on the basis of achievement. The distribution of achievement test scores among different population groups can be analyzed for equality. Equality of output is more complex to analyze than equality of input. Achievement as an output of education depends on many things besides the mere provision of educational services. Results depend on intelligence, aptitude, and social attitudes that have been developed by the individual as a heritage of past opportunity. Plans and policies may insure equal inputs, but this may not insure equal outputs. Much less will equalizing inputs insure equality of educational outcomes. These are the longer-term consequences which can only be attributed in part to schooling The outcomes may include occupation, earnings, income, lifestyle, and social and political attitudes. Analysis of equality is more a concern of social researchers, than of planners (Jencks 1976).

The issue of equality very soon turns into an issue of equity. The assessment of equality may be based on measurements of distributional characteristics alone, but evaluation of equity is based on further interpretations of the distributional facts, often by comparison with moral norms. If the distribution measure is compared in any way, and it is usually set up for the express purpose of a comparison, the concept of equity enters The norm itself — that the share of the good should conform to the share of the population — is grounded in the ideal of equity Any intergroup comparison is a matter of equity. Most spatial and inter-temporal comparisons are based on the underlying ideal of equity

It would be wrong to state that equity and equality have been central to past attempts to plan on the basis of social demand. Universal education as a social goal does have its underlying justification in notions of equity and equality, but not all plans for universal schooling were based on equity Early attempts at social demand planning were more concerned with equality as a target, or plan goal, than as a standard against which the system had to be constantly monitored and redirected when the assessment showed deviations. Early planning seemed satisfied with the statement of the goal The space in this volume given to equality and equity indicates that there is increased attention to these themes in planning literature. To some extent this concern has carried over into practice. There is a long way to go before these concerns are translated into plan implementation and attainment of equity. Just in case planners are not sufficiently aware of this, there are many critics around to remind them.

5.0 *Planning Based on Analysis and Projection of Aggregated Private Demand*

A third major form of social demand planning is based primarily on the analysis and projection of aggregate private demand for education. This private demand may be affected by many different cultural, social, and idiosyncratic influences. Demand is influenced by general social and economic conditions and policies, institutional policies and programs, and individual values and perceptions. Though this type of planning analysis is called social demand planning, the influence of economic factors is central at all levels of decision, whether in public or institutional policy, or individual choice. For example, a public policy to open higher education enrollments to wider social class participation may be directly implemented by abolishing elitist admission policies; but enrollment will be influenced by scholarship assistance programs, lowering of tuition and fees, economic and employment opportunities in fields of study, and individual preferences for institutions and fields of study. The planner in this situation attempts to analyze the effects of these many variables and conditions. He then tries to chart the future market demand of aggregates of individuals who will be making future choices of educational programs.

This third form of social demand planning has been more characteristic of planning in the United States, where there is consumer influence on the educational market, and less state support, state control, and standardization in higher education, both public and private. This form of analysis would also cover estimation of demand for "proprietary" (private and for profit) secondary or post-secondary schooling in the United States, Europe, and Japan. There is increasing application of the approach in the developing countries, but almost always at secondary or post-secondary level.

Again, recall that social demand planning does not imply that demand for education is influenced only by social variables. Economic considerations may have a determining influence, when a potential future customer makes some semblance of a cost-benefit decision. The decision process may not resemble the economist's idea of how rate-of-return calculation is used to support a decision to invest in additional education. Still, individual choices may be influenced by some form of "private" returns estimate. The point is not that social demand planning is free from economic influences, but rather that the analyst must take into account the influence of many other factors that are not purely economic.

Various research designs and statistical methods may be applied to support planning on the basis of aggregated private demand, but the standard one is regression analysis based on the linear model. The usual study is in the form of the *natural experiment*. This means that the data are taken from existing records rather than collected in a controlled experiment, or in a specially designed sample survey. The data

on large numbers of individuals are collected in aggregate form and analyzed in the cross section by statistical disaggregation on the basis of classification or enumeration. For example, a large number of students enrolled in a university program are categorized by sex, age, income levels, and tuition fees paid. The data on fees actually paid may be supplemented by expectative questions: Would students still enroll if tuition rose to a certain level? The typical analysis attempts to determine what variables influence enrollment decisions. The results are used to forecast the future decisions of similar people in similar situations. The simple model would be as follows:

Arrangement for a Typical Regression Analysis

Response, or Dependent Variables(s)	*Antecedent, or Independent Variables(s)*
Response of individual student(s) in the form of enrollment in educational programs of a specific type, or in a specific institution, or type of institution. Example: enrollments in civil engineering programs in four-year private colleges.	1. Demographic (age and sex) characteristics of the students 2. Socioeconomic (income, occupation, education) level of parents 3. Cultural-ethnic characteristics of students. 4. State economic policies and programs (scholarship assistance) 5. Institutional policies and programs (admission standards, tuition, fees, assistance) 6. Individual information and attitudes may be gathered in special survey questions, i.e. values, interests, scores, grades, aptitudes, knowledge of job market.

The analysis will show how much enrollments will change as key policy variables (tuitions, scholarship aid) change. Using these relationships, the planner can estimate the changes that may take place in future enrollments, as policy and situational variables change in the future. The planner can then set up a model of future conditions, and on the basis of projected or assumed changes in values of relevant policy and situational variables he can estimate (project) changes in enrollments in higher educations.

The list of variables, particularly independent or antecedent variables, can be considerably lengthened, according to the situation

studied. Just as clearly, the influences on enrollments are complex, and no simple regression analysis can untangle all the effects and interactions in such a complex social and economic situation. The approach can be critized on various grounds.

The model, methodology, and criticism of the regression analysis approach are all exemplified in a study of the effects of costs and financing policies on higher education demand in the United States. In *National Commission on the Financing of Post-Secondary Education* (1975), the Commission study group projected enrollment on the basis of estimated enrollment "responses" to changes in tuition. The student responses to tuition changes were based on studies of changes in tuition and their effects on changes in enrollment. The model which was commonly used for these studies was the regression model previously schematized. In addition to changes in tuition, the model also introduced as independent variables changes in the economy (income changes), changes in selective service (draft) policy, changes in campus conditions, and changes in higher-level manpower demand. Among the studies used were Hoenack and Feldman (1969), Corrazzini (1972), and Campbell and Siegel (1967). Other policy planning studies of social demand for higher education in the United states include the Newman Report (1971), the Carnegie Commission Study (1973), and the study of the President's Panel on Youth (1973).

In developing countries forecasts of social demand for higher education are based on one, or a combination of, economic and social demand approaches:

- A simple trend extrapolation based on changes in higher education enrollments within the country in past years.
- A manpower requirements study which estimates the so-called economic demand for higher education.
- A comparative analysis which estimates future changes in enrollments in one country on the basis of changes in enrollments in another country. (presumably because the economies, societies, and cultures of the two countries have some similarity).
- A continuation of projections of secondary school graduates, in which enrollments in higher education are projected on the basis of an assumed fraction of secondary school graduates continuing on into higher education
- A projection of enrollment based on future resources available, in which changes in enrollments are projected on the basis of projections of available physical facilities (higher education places), trained teachers, or general financial capabilities and costs. The results from any of these five simple approaches to projections

based on social demand can then be incorporated into more comprehensive models, as in Schiefelbein, Davis (1974). Regression analysis results may be used in the projection models of developing countries, but rarely is the analysis based on changes in tuitions and fees as a determinant of changes in enrollments.

Since, in many countries, tuition costs and fees are minimal and higher education is heavily supported by the state, planners rely less on studies of aggregate private demand for higher education. Future enrollments are generally forecast according to the number of available places in the national universities, and on estimates of the possibilities for expanding the number of university places, given future limits of resources (Dominican Republic 1974; Colciencias 1972: Rodriguez de Almeida and de Oliveira 1960). These forecasts may come true because of sheer physical limits of space, and the numbers of new entrants may be held down by selective admissions policies justified on the basis of academic standards of quality. Limited admissions are based on examinations, secondary school grade point averages, or prior degrees and certificates.

Places and spaces limit access to higher education in Japan and Germany, too, but in these countries policy planners would base enrollment forecasts on the policies which control admission to university programs (Becker 1974) In Germany, enrollments are governed by the awarding of predetermined proportions of existing places on the basis of grade point averages from pre-university study in the Arbitur program. Expansion is even more tightly limited by admission standards based on examinations in the universities of Japan, and by examinations, secondary school performance records (including marks), and other "signs" of excellence in the select universities of the United States

A number of comprehensive studies of the social and economic, even geographic, influences on future enrollments in higher education have been carried out in Latin America King and others studied growth determinants in Mexican Universities (1971), Aldana in Colombia (1973), Orellana in Chile (1962) Confederations of universities have carried out continuing studies and projections of enrollments These include CSUCA (The Higher Council of Universities of Central America), the Colombian Association of Universities (Asociación Colombiana de Universidades), and Asociación Nacional de Universidades e Institutos de Enseñanza Superior de Mexico In Sri Lanka, Thailand, and Taiwan, studies of enrollment growth in universities have been made as part of the supply side of general manpower plans. In Brazil (1971) the analysis has been part of general sector plan for education, and higher education growth has been studied in El Salvador, Ethiopia, and Ecuador. Almost every developing country has engaged in some form of planning of higher education.

6.0 *A Summary Comment on the Social Demand Approach to Educational Planning*

The term "social demand planning" may be applied to studies in which the determinants of future enrollments are limits on classroom space, standards of "quality" incorporated into admission quotas, scholarship policies and tuition charges, geographical accessibility, ethnic, linguistic, and religious characteristics of institutions or their potential clients, admissions standards, examination and marking policies and broad policies of open enrollment or selective admission. To return to a point that was made at the outset; *social demand planning* is a catch-all term. It refers to everything else that determines enrollments in the future, except purely economic factors. It does not exclude economic influence in the case of aggregate private economic demand

Social demand has been the most common basis for educational planning in the past, but this approach lost out to economic-based (manpower) planning in the decade 1960-1970. More recently, however, because of a lack of faith in purely rational and economic bases for planning, there has been renewed interest in broadening the narrow economic framework that has been imposed on social planning. Some commentators (Barrios 1979) believe that social demand planning will be the wave of the future, but what they mean by this is the development and use of comprehensive planning models that takes more account of the influence of social, cultural, political, ideological, and psychological variables. The great hope has long been that a truly comprehensive social planning model will be developed (Davis 1966; Schiefelbein and Davis 1974). The hope dates back to Mannheim (1949), and his idea for social planning, which could identify and chart the *principia media* of society, i.e. the broad forces that will shape the future. The broad and all-encompassing model is also the goal of Forester (1971), Meadows (1972), and, in less systematic forms of the ecologists. It is a decent hope of people who care about societies but probably a vain one.

APPENDIX

Government of Malaysia
First Malaysia Plan 1966-1970;
Kuala Lumpur, 1965; p. 3

II.—OBJECTIVES OF THE FIRST MALAYSIA PLAN

3. The First Malaysia Plan is designed to make a bold and imaginative attack on Malaysia's problems. The main objectives of the Plan are:

(i) To promote the integration of the peoples and states of Malaysia by embarking upon a development plan explicitly designed to promote the welfare of all;
(ii) To provide steady increases in levels of income and consumption per head;
(iii) To increase the well-being of Malaysia's rural inhabitants and other low-income groups, primarily by raising their productivity and thus their income-earning capacity;
(iv) To generate employment opportunities at a rate sufficient to provide productive work for new entrants to the labour force and lower the rate of unemployment;
(v) To stimulate new kinds of economic activity, both agricultural and industrial, so as to reduce the nation's dependence on rubber and tin;
(vi) To educate and train Malaysians from all walks of life in order to equip them for effective participation in the process of economic and social development:
(vii) To lay the groundwork for less rapid population growth by instituting an effective programme of family planning;
(viii) To open for development sufficient new land to keep pace with the formation of new farm families and reduce the number of landless people desiring land for agricultural purposes;
(ix) To provide electric power, transportation facilities and communication services adequate to keep ahead of foreseen demands;
(x) To progress with health and social welfare development, low-cost housing and a wide range of other projects.

4. The First Malaysia Plan will consolidate past progress and initiate new efforts towards these objectives. It incorporates detailed programes of action to be undertaken during the next five years, based on a full appreciation of the problems and a general strategy of how they are to be solved over a longer period of time.

KINGDOM OF SAUDI ARABIA; MINISTRY OF PLANNING:
SECOND DEVELOPMENT PLAN 1975-1980
RIYADH, 1975; p.3-5

I. DEVELOPMENT GOALS

Planning implies the efficient use of a country's resources in accordance with certain rationally-determined priorities for the attainment of nationally-cherished goals. Since goals are culturally, historically and politically oriented, a country's development plan essentially reflects its fundamental values and principles.

Th fundamental values and principles which guide Saudi Arabia's balanced development are expressed in the following goals:

Maintain the religious and moral values of Islam.
Assure the defense and internal security of the Kingdom.
Maintain a high rate of economic growth by developing economic resources, maximizing earnings from oil over the long-term, and conserving depletable resources.
Reduce economic dependence on export of crude oil.
Develop human resources by education, training, and raising standards of health.
Increase the well-being of all groups within the society and foster social stability under circumstances of rapid social change.
Develop the physical infrastructure to support achievement of the above goals.

The Development Plan, 1395-1400 provides for further advance toward the social and economic goals listed above while maintaining the religious and moral values of Islam. These goals are elaborated and placed within the context of Saudi Arabia's internal policies in the discussion that follows.

1. HIGH RATE OF ECONOMIC GROWTH

The human and natural resources which God has given the Kingdom will be efficiently used to maintain a high rate of economic growth and to reduce the country's independence on a single depletable asset, oil.

The Government recognizes that to achieve this goal requires diversifying the economy by encouraging expansion in agriculture, industry, and mining, with particular emphasis on petrochemical and mining industries in which the Kingdom enjoys a comparative advantage.

The Government will encourage the expansion of the private sector in these activities through providing the necessary facilities and incentives.

2. DEVELOPMENT OF HUMAN RESOURSES

All the people of Saudi Arabia will have access to educational and training facilities at all levels, and health services will be provided throughout the Kingdom.

Education and training — free of charge at all levels — will continue to expand and improve in quality, with the aim not only of eradicating illiteracy and promoting learning, but also to teach new skills, to

stimulate research and the use of production and distribution techniques, and to inculcate the spirit of honest hard work.

To achieve the full potential of the Kingdom's human resources requires the creation of a healthy social and physical environment combined with an adequate free medical service throughout the country in fully-equipped hospitals, dispensaries, and health centers.

An economic climate will be created that enables the individual to find gainful employment in accordance with his capabilities, to depend on himself in earning his living, and to contribute to the development of his country.

3. SOCIAL WELL-BEING

Social services will be developed to ensure that every group and individual, however disadvantaged, enjoys an adequate, dignified minimum standard of living; levels above this minimum will continue to be the reward of individual effort and achievement.

Towards realizing this goal, the Government intends to expand and intensify its programs in the following ways:

- Make essential goods, especially staple food items, available at stable and reasonable prices, subsidizing prices if necessary, with due regard to the effect on domestic production.
- Provide free education at all levels and create a clean and healthy environment with adequate medical facilities available free of charge
- Arrange on easy terms suitable housing constructed at Government initiative for those with limited income, and encourage construction by others through granting interest free loans with some subsidy, the ultimate goal is that every Saudi family owns it own house
- Extend social security and other benefits, including assistance payments for the needy
- Make credit available free of interest to those with limited incomes having temporary financial difficulties

4. PHYSICAL INFRASTRUCTURE

The Government will continue to expand and improve the physical infrastructure — transportation, communications, municipalities, and housing — as required to support achievement of the above economic and social goals

5. ECONOMIC FREEDOM WITHIN SOCIAL WELFARE

The economic system of Saudi Arabia is based on the principles of free economy where a substantial part of the production and distribution of goods and services is left to individuals and groups enjoying freedom in their dealings and transactions While the Government of Saudi Arabia will uphold the market system and encourage the private sector to play a fundamental role in the accelerated growth and development of the country, it will take all necessary measures to make the market system conform to the larger social interests of the country.

Note: These plan goals will be further analyzed in Chapter 12.

CHAPTER 4

The Manpower Requirements Approach to Educational Planning

RUSSELL G. DAVIS

1.0 *Introduction*

Education plans are often shaped according to manpower requirements planning. In manpower planning a set of analysis techniques and forecasting methods is used to characterize and project the workforce according to its sectoral and occupational structure. Workers are classified according to the sector, or branch of economic activity, in which they work, and according to their type of work or occupation. The workforce, classified by sectors and occupations, is projected into future years, usually on the basis of an economic growth trend that is assumed, planned, or extrapolated from the past. This projection of the workforce, employed and unemployed[1], by sectoral and occupational membership may then be used as a set of requirements or goals for manpower development policies and program development and for setting education/training targets.

Occupational requirements can be translated into education-training requirements, i.e. the number of workers in the occupation requiring a given level of education or training. The resulting forecast can be used to set targets for the planning of education and training. The projected requirements for educated workers are compared with projected outputs, or supply, of education-training programs, and the deficits or surpluses are used to guide the development of education-training programs. Manpower planning need not be taken to the point where education requirements are compared with education outputs, but it is this step that has led to the application of manpower planning to education planning.

This chapter discusses, in general terms, the use and usefulness of manpower requirements projections applied to educational planning. The discussion is general and nontechnical. Examples are drawn from

1 In many planning exercises the first step is to forecast employment by sectors and occupations. An estimate of unemployment is then made. When the employed and unemployed are added, the result is the economically active population, or more loosely, the workforce.

experience in the United States as well as from developing countries. The aim is to make the discussion useful and understandable to a broad range of readers. The main audiences are policy planners and planning technicians in developing countries; but planning specialists and general development administrators from Europe and North America may also find the discussion appropriate The cost of aiming at so broad a readership is that some examples from one setting may not appear relevant to readers from another. The benefits are those that accrue to all comparative treatments — many problems and approaches for solving them are similar across national settings. Manpower planning is a perfect transnational example. Many of the approaches and techniques were originally developed and proposed by analysts and planners from Europe and the United States, but most of the macro-level applications and elaborations were developed by planners in other countries. Developments from other countries were then applied back in the United States. There is constant exchange. Credit for the methodology and blame for its weaknesses belong to many countries.

The techniques of manpower planning are not discussed here. This topic is covered in an instructional unit on planning methods in Volume II. This chapter is a brief and general review of issues. Systematic treatment of economic theories and review of scholarly literature on manpower planning are not covered

2.0 *General Uses and Limitations of Manpower Planning*

Manpower analysis and forecasting can be used for other ends than educational planning Manpower analysis can be used for setting employment and labor policies, for recruitment, or for labor allocation. Education also has broader objectives than the satisfaction of a set of occupation requirements. The fit between manpower planning and educational planning is imprecise, and the partnership between manpower planners and educational planners is not a comfortable arrangement.

Education aims to form the whole person, to impart broader knowledge than any specific job performance may require, to develop aesthetic and cultural sensibilities that may have no economic justification, and to form moral values and influence attitudes Tagore has stated the aim of education as "the all round development of an individual for harmonious adjustment to reality," (Mukherjee 1962). This notion of education for wholeness was developed in classical antiquity by the Greeks and came to the fore in the Renaissance. In modern times, Spencer (1938) viewed education as "preparation for complete living." In China, during Mao's era, the purpose of education was less to impart knowledge and develop trained experts and workers than to stimulate and preserve ideological dedication and socialist attitudes (Mao 1971). Manpower planning clearly narrows the focus of

analysis to a caricature of a person as worker only and limits the purpose and effects of education to the filling of sector-occupation slots in the workforce.

Manpower analysis and planning also have uses which extend beyond education planning. Manpower planning can be used to shape employment and labor mobilization policies, assess the feasibility of economic growth plans, and probe structural unemployment and imperfections in labor markets.

Despite the imperfect fit between manpower and education planning, there has been a constant interplay between the two for the past twenty years, and the "manpower requirements" approach, sometimes called the "economic demand for education," has been identified as one of the three or four major approaches in educational planning. The previous chapter dealt with issues raised in educational planning based on social demand, where demographic forecasts and social-cultural goals are used to set education targets. If all children are to receive a primary education, the planner who follows the so-called social demand approach simply has to project the population and use the number of children in the relevant age group as the plan target. Under the so-called economic demand, or manpower requirements, approach, the target is presumably set by the number of educated and trained workers required in the workforce Obviously, this socially blind, perhaps even economically inefficient, limitation is never imposed on plans in the real world The issue is one of relative emphasis rather than a single-minded pursuit of either "economic" or "social" targets

Educators fault manpower planning for the narrowness of its focus and for the simplicity of its portrayal of education and human development Economists fault manpower planning on the same grounds and add critiques of the underlying conception of the economic process involved and of imperfections in the methods as applied Withal, manpower planning has been joined to educational planning, for richer or poorer, and this has been a common, if not demonstrably fruitful, union over the past twenty years The two are still joined

Despite criticisms of the approach — and we shall review some of the limitations of the methods here — there can be no argument that manpower planning has not been widely used It is still being used. There is more room for reasonable doubt about whether manpower planning has affected educational development to any great extent, but this doubt could as well be voiced about any systematic analysis and planning, and extended to most of the theory and methods of social science At an OECD seminar, responding to charges that manpower planning ahd been harmful, or at least limiting, to educational development, Davis (1972) stated that manpower planning had in general been neither helpful nor harmful to education, and more likely had had very little effect This was the kind of statement fashionable in meetings where "the academic wise ones" gather, but over the years

that have followed, the evidence suggests that manpower planning deserved a more balanced appraisal, if only for its persistence.

2.1 *Informal Appraisal of the Status and Use of Manpower Planning*

Before a brief rehearsal of the well-documented criticisms of manpower planning, it may be useful to set out a few preliminary observations:

1. Manpower planning activity has gone on in many countries over the past twenty years. Quite apart from surveys and books which report applications., the writer has personal knowledge of manpower planning activity in twenty-five countries, including the United States. There has been no complete listing of manpower applications, but as a guess it would number about fifty.

2. Many, though not all, of the applications used manpower analysis and planning as a basis for educational planning.

3. The demand for manpower planning is still brisk. In eight of the ten countries where the writer worked in the past two years, though not necessarily on manpower planning, there was a new initiative underway in manpower planning, or one planned or under active consideration.[2]

4. Sufficient time has elapsed so that some manpower forecasts have been checked against subsequent outcomes, and two instances will be cited. These checks indicate that manpower developments in many instances come out as forecast. The concordance of manpower forecasts with subsequent developments suggests only that things sometimes come out as projected, not that they come out as they should have or that manpower planning had any influence, benign or malign, on developments.

5. The writer knows of no instance where manpower planning has had any direct or discernible impact on the major shaping or reform of a national education-training system. If manpower analysts or planners expected such an impact the record indicates they were disappointed On the other hand, events as momentous as wars, famines, floods, pestilence, revolutions, and major reforms have often had little discernible effect on reshaping national education systems. Manpower planning has had only indirect effects on educational reform, and these effects have been small and fleeting

6 Manpower planning has had some effects below total system level. Manpower planning has redirected education and training programs in some sub-national or local areas, has changed programs in single institutions, and has had effects on the development of new training fields It has also affected scholarship programs and institutional subsidies, even in countries where the approach has been

2 Paraguay, Dominican Republic, Saudi Arabia, Afghanistan, El Salvador, and three countries in the Sahel region of Africa

criticized and where the national educational system plans and program developments ignored manpower forecasts (McGinn and Davis 1969).

7. Manpower planning may have provided an information base that stimulates secondary effects later, and after many twists and turns, but this is not easily subject to verification (Schiefelbein and Davis 1974).

8. There are instances where manpower plans have had seemingly no effect whatsoever and may never even have been read.

9. The early initiatives for manpower planning, as for planning generally, came from technicians and officials of international assistance agencies, but within the developing countries decision makers still request and support manpower planning. Sometimes this is "repeat", and not "new" business, which indicates that even officials who have supported previous manpower planning activities have not been completely disenchanted with the performance. We shall briefly inquire into why this may be so

3.0 *The Approach: A General Comment*

Manpower planning has supporters, but not because the approach and the underlying assumptions about human development are attractive. A comment has already been made on the narrowness of the manpower planning concept of man. More specific failings appear in the methodology.

3.1 *The Method: A Brief Critique*

There are no elegant models for manpower planning. The basic method is a mere set of steps. In an alternate approach a crude fit is made to historical or comparative data, and trends are extrapolated to the future. The theory behind manpower planning is loose, and the models and methods have offered little attraction to theorists and methodologists. The Basic Method and Alternate Method, outlined in the first column of Schema 4.1, provide a rude framework for systematically arranging information. Much of the information is informed opinion, and manpower projections are based on these opinions.

To the reader unfamiliar with manpower planning the presentation of the Basic Method and the Alternate Method in Schema 4.1 may suggest a formal model and a rigorous system. Nothing could be further from the truth. The Basic Method is simply a set of steps (from a to f) presented in shorthand. (a) Product is forecast by sectors of the economy (or taken from the national plan). (b) Productivity is forecast for sectors and industries. (c) Productivity is divided into the product forecast to yield a forecast of employment. (d) The employment within sectors is distributed by occupations. (e) Occupational requirements are related to educational requirements. (f) Educational

requirements (or "demand") are aggregated across sectors. Many of the settings in the Basic Method are subjective, based on experience, or borrowed from past or comparative situations.

The Alternate Method presents a facade of algebra, but the essentials are the same as in the Basic Method. At this point we will not explain the formulas, which are studied in detail in chapter 12 of Volume II on Methodology. The general argument of the Alternate Method is that demand for workers in occupation (i) and sector (j) can be projected according to past trends in the number of workers in the sector, the growth in productivity in the sector, and the relationship between that productivity growth and increase of workers in a given occupation. The growth in productivity and number of workers is extrapolated from past history in the country, and (bij), which shows changes in the number of people in a given occupation as productivity changes,[3] is taken from international tables. The methodology, despite the algebra, is just as subjective as the Basic Method.

The Basic Method and the Alternate Method for projecting manpower simply provide general frameworks for systematically arranging information. The manpower requirements for some sectors of the economy may be projected outside the framework of the Basic Method, and the results then put back into the general framework. Examples are shown in the second column of Schema 4.1. The requirements for some service sectors (government, education, health) may be projected on the basis of population projections and per capita service ratios. Some industries produce inputs for other industries, and these relationships can be used to link forecasts. In agriculture, acreage and crop yields may provide guidance for the forecasts.

In the second and third columns of the schema are suggested procedures and information sources for supplementing the analysis and projections of the Basic Method with information and opinion. There is no elegant or analytical model for incorporating this detailed information, which must be put into the basic framework of sectoral, occupational, and educational distributions. Rough check ratios and adjustments can then be made and new rounds of iterations carried forward.

The third column of Schema 4.1 lists some sources of additional and detailed information for projecting the growth of production, of productivity, and of employment in the sectors. Information in the third column can also be used to improve enrollment projections by taking into account all those labor market and education market influences which shape the demand and supply of different numbers and kinds of educated workers.

3.2 *A Brief Note on Micro Level Manpower Requirements Forecasts*

When the term "Manpower Requirements Planning" is used it is

3 *bij* is an elasticity coefficient relating productivity and number in the occupation

customary to think of national level (sometimes called "macro-level") planning, but manpower planning is also carried out at the level of regions and states, at the level of sectors, and finally at the level of single enterprises and firms. The last application is sometimes referred to as "micro-level planning." Manpower analysis at national, or macro-level, is most often used to guide educational planning, although sometimes macro level forecasts are built up from micro-level analyses. The data may be gathered by establishment surveys which collect manpower and employment data within firms; or the analysis of requirements may be run for a given industry or sector and then built up to a national level forecast. Occasionally, regional (province, state, or zone) manpower requirements are used to establish the demand for graduates from a specific education-training institution in the region.

Micro-level manpower planning is considerably more difficult to accomplish with accuracy. At national level the statistical anomalies tend to smooth out because of large numbers. Changes are less abrupt, and there are fewer major discontinuities which can destroy forecasts. Pizkor (1971) reviews the models and methods applied to manpower requirements forecasting and planning at *national, regional/industry* and at *corporate* level within large firms. In the analysis of manpower requirements within firms a variety of static flow models, dynamic flow models, and mathematical models, including goal programming models (Charnes 1968, and Price 1974), have been used. Purkiss (1970) developed a graphic model to guide manpower planning at the corporate level. This model is shown in Schema 4.2. It is clear and simple enough conceptually. It also demonstrates that the fundamental requisite for manpower planning at the corporate level is a comprehensive and current management information system. The basic forecasting methodology in Schema 4.2 is similar in principle to the Basic Method in Schema 4.1. First, product is forecast according to corporate development plans. Then productivity is forecast. Then the requisite technology is forecast. Associated with a specified technology and a product and productivity forecast is a set of manpower requirements in the form of detailed manning tables (employment classified by jobs or occupations and sometimes by educational and skill levels). The model and method are simple, but quality management data on all phases of the enterprise are required for the forecast. The quality of the management data determines the adequacy of manpower requirements forecasting at corporate level.

3.2 *Criticisms of General Approach*

Some economists challenge the basic theoretical structure of neoclassical economics on which manpower methods are based (Vaizey 1972; Robinson 1971). Labor markets do not function as competitively and regularly, as manpower models and methods depict

Schema 4.1
Outline for Manpower Planning

I. AGGREGATE LEVEL FORECASTS

1. Basic Method

Steps

a) Product forecast by sectors (plan targets)
$P \longrightarrow$

b) Productivity forecasts
P_{pw} = product per worker

c) $\frac{a}{b} = E$ Employment by sectors

d) E distributed sectors by occupations

e) Occupation distributed by education (levels and programs)

f) Education "demand" aggregated

2. Alternate Method (Growth in Occupation)

X_{ij} = number in occupation (i); sector (j) in the base year

D_{ij} = future requirements in occupation (i) sector (j)

Steps

a) Project D_{ij}

$$D_{ij} = \sum_{j=1}^{n} X_{ij} \left(1 + e^{(h_{ij} r_{pj} + Y_{Lj})}\right)^{t}$$

II. DISAGGREGATED (PIECEMEAL) REQUIREMENTS (TO SUPPLEMENT AGGREGATE FORECASTS)

1. Service Sector Government
   A. Population based service norms/ratios
      a) Education (link to supply)
         i) Social Policy (coverage, demographic)
         ii) Education policy Program staffing, e.g. t/p ratios
      b) Health Services
         i) Coverage needs, demand
         ii) Delivery systems/norms/staffing i.e. Beds/Doctors Nurses Parameds
      c) Other Government Services
         i) Defense (numbers, organization manning tables)
         ii) Police fire sanitation (state, municipal)

2. Core Industry Arrays Input/Output, Forward/Backward Linkages
   a) Scale/Technology/manning tables (present and future)

III. DEMAND/SUPPLY EFFECTS ON FORECASTS

1. General Government Goals/Policies Analysis
   A. Growth Rates economy
      a) Investment, monetary fiscal
      b) Employment plans, policies
   B. National Education: Demographic/Social targets
      a) access
      b) flow
      c) output, programs/issues
   C. Education Sector Policies
      a) input norms
      b) costs
      c) resource constraints revenue policies/finance H.R. lags (e.g. trained staff)
      d) Admissions/scholarship policies, subventions, systems & institutions
         i) influence access & flow
         ii) Influence incentives choices

(Scheme 4.1 continued.)

b_{ij} = rate of change of workers in occupation (i) as productivity in sector (j) changes

r_{pj} = National data historical trend productivity rate

X_{ij} = Growth in numbers of workers trend

e = Form of the growth curve is exponential

b) Distribute by Education levels and Programs

c) Aggregate Education "Demand"

3. Apply aggregate level ratios as checks e.g.

a) Participation rates
b) Demographic rates

b) Establishment surveys
Employment (Present & Future Estimates Wages and Salaries)
X occupation given market share
prices scale technology

3. Small Industries and Pvt. Services
Linked to other industries & service needs
Linked to population served ratios & technology
Linked to income & effective market

4. Agriculture
Crops/Acreage
Land Tenure Patterns
Cultivation Patterns
Export, World Demand, Export Policies.
Prices Domestic Numbers, Diet, Income

5. Fill details in cells and check with Aggregates from I. Final iteration deficit Phase I

Demand - Base stock + wastage - supply = Deficit
Interaction in subsequent iteration phases

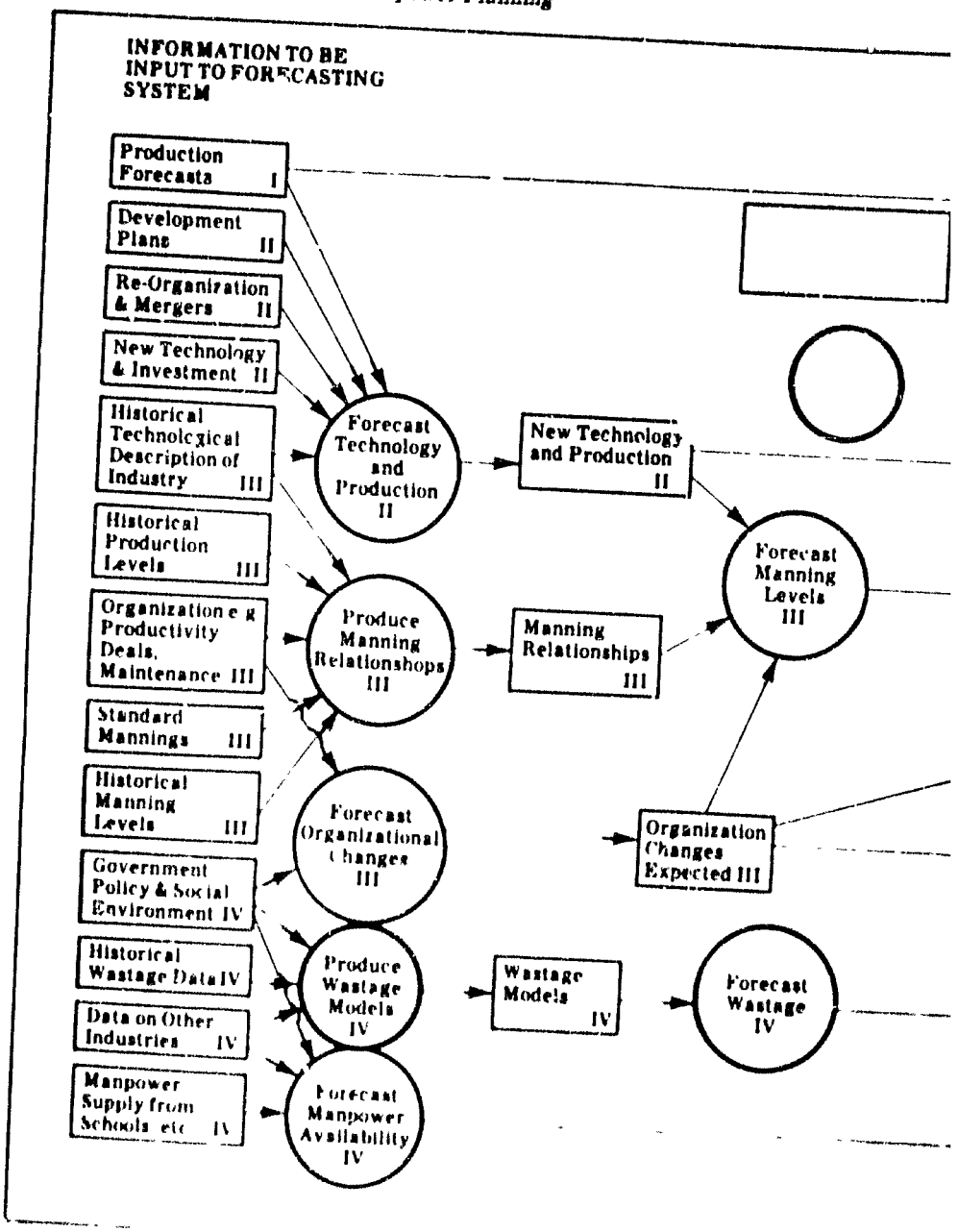
2. Demand/Supply/Price Interactions
Econ
A. Labor Market Information
a) job opportunity
i) openings, promotion
ii) earnings (wages, salaries)*
iii) other returns (phychic)
b) Guidance Information
Voc/Career choice
Educ/Career choice
B. Rate of Return Studies*
a) Earnings profiles
b) Employment probability

1. Social/Cultural Values
a) National
b) Community
c) Family
d) Individual

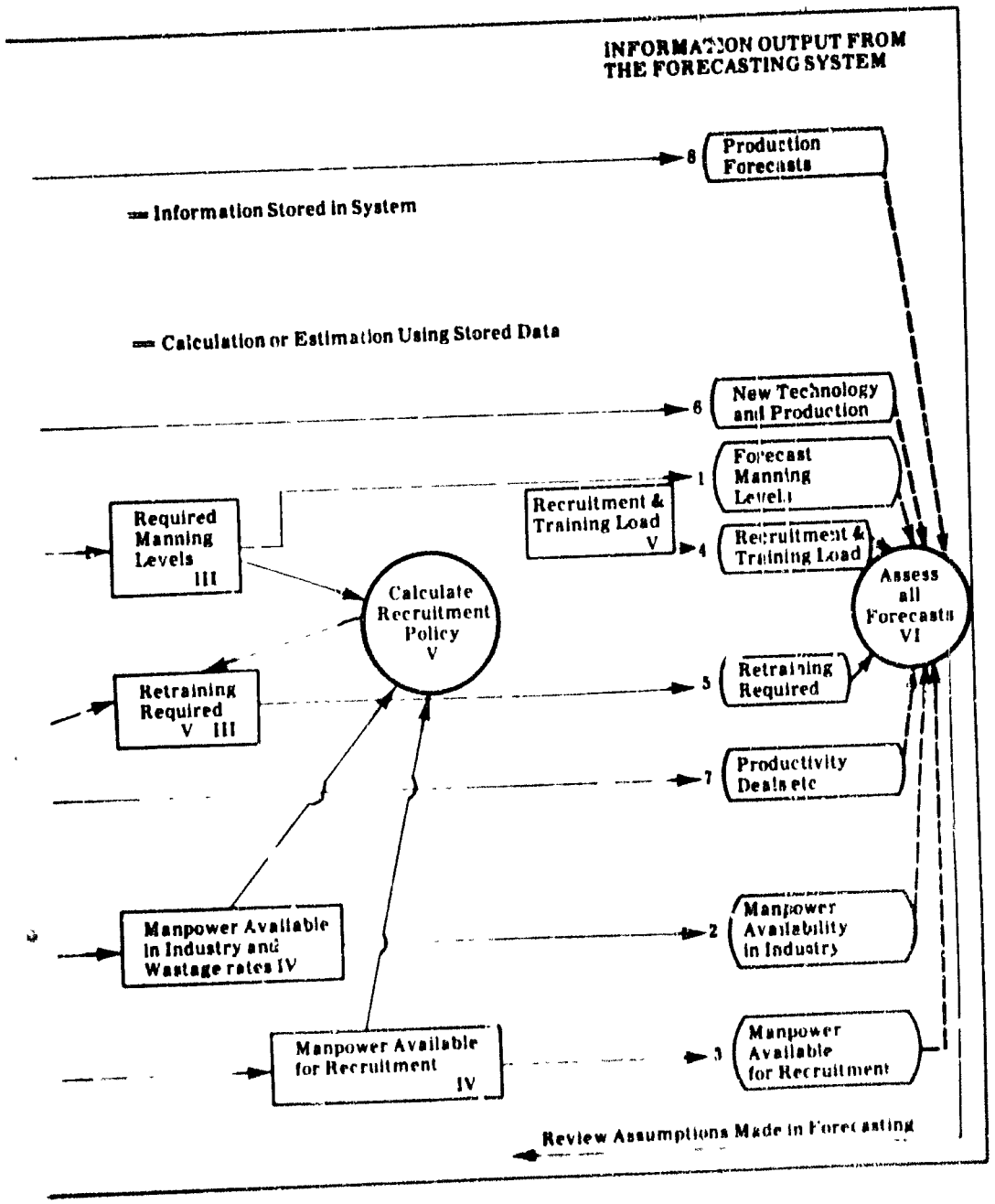
Value of Education

*Effects on Demand & Supply Choices (Elasticities if possible)

Schema 4.2: Purkiss Model of Manpower Planning



Source Purkiss, C.J., "Models for Examining and Optimising Manpower Deployment", International Research Systems Ltd.


INFORMATION OUTPUT FROM THE FORECASTING SYSTEM
Information Stored in System
Calculation or Estimation Using Stored Data
8 Production Forecasts
6 New Technology and Production
1 Forecast Manning Levels
4 Recruitment & Training Load
5 Retraining Required
7 Productivity Deals etc
2 Manpower Availability in Industry
3 Manpower Available for Recruitment
Required Manning Levels III
Recruitment & Training Load V
Retraining Required V III
Manpower Available in Industry and Wastage rates IV
Manpower Available for Recruitment IV
Calculate Recruitment Policy V
Assess all Forecasts VI
Review Assumptions Made in Forecasting

them. Manpower analysts assume that there are fixed occupational distributions within industries, and that these are reflected by occupational distribution coefficients, i.e. a given percentage of engineers in a given industry. They also assume that there is a relationship between occupations and a given level and kind of education. These assumptions are also reflected in coefficients. The assumption that these relationships are fixed is a questionable one.[4] Still, manpower planning has had a long history, and no alternative has been developed to take its place.

4.0 *Brief History of Development and Application: Planning*

The theory and methodology of manpower planning are inadequate, but the approach and method have persisted relatively unchanged during the past twenty years. The background to the theoretical development of aggregate manpower analysis and planning is meager. Much of the development has come through actual application of the methods to national planning in developing countries. Harbison and Myers (1964) provide one of the earliest attempts to develop a rationale, if not a theory, of the relationship of educated manpower to economic development. Harbison also worked on one of the earliest applications of manpower planning to education planning in the time of the Ashby Commission Study in Nigeria (1960). Correa and Tinbergen (1962) and Tinbergen and Bos (1965) developed a comprehensive model which traced manpower requirements, expressed in general educational attainment levels, directly from forecasts of aggregate growth in the national economy. This model was elaborated and disaggregated by OECD economists, who applied it to manpower and educational planning in the southern Mediterranean countries. Later the approach was transferred to Latin America, as in the Argentine manpower planning mission in 1968.

Parnes (1962, 1963) contributed to the basic method by providing tabled coefficients of occupational distributions within sectors. These were based on multi-country comparisions. Application of the coefficients implies that there is some normative validity to occupational distributions within each sector. This means that there are certain "ideal" percents of managers, engineers, and skilled workers, and so on, within a given industry, and thus planners can project employment in a sector and multiply the projected number by the occupational percents, or coefficients, in the tables (Davis 1966). The assumption of fixed coefficients means there is zero substitutability among different types of educated workers. Horowitz, Zymelman, and Herrnstadt (1966) elaborated multi-country tables of occupational and educational distributions. Planners used, or misused, these coefficients, or modified versions of them, in applications to manpower planning in specific country settings. The United Nations and UNESCO also

4 Within the same industry, different occupational mixes can produce the same output. Also, people in the same occupation may have different educational backgrounds.

developed and extended basic tables and reference materials for planners. The Basic Method outlined in the first column of Schema 4.1 reflects the methods developed by Parnes (1962, 1963) and the OECD economists (1965). Blaug (1967) has pointed out the weaknesses in the assumption of fixed coefficients (zero substitutability).

Theorists seem to have put more effort into criticism of the Basic Method than into the development of new approaches, but there were attempts to develop more adequate formulations of the systematic portions of the methodology. Clough (1974), Freeman (1975), and Puntasen (1973) have added improvements to the forecasting models and methods (see Chapter 5).

The bulk of the practical criticism focused on the fact that manpower forecasts, as with any forecasts, often turned out to be wrong or misleading, or were simply ignored by decision makers. More technical criticism centered on assumptions of fixed and sometimes rigid occupational structures within sectors and industries, when in reality occupational distributions with industry could differ according to technology, scale, organizational patterns, customs, culture and whim. When coefficients, reflecting the occupation by industry distributions, were lifted from one country or industry and plugged into another the underpinning of rationality was suspect. The methodology was not greatly improved by deriving coefficients from regression analysis which averaged the patterns of several industries and countries, nor by deriving trends from historical analysis of past patterns within the same country.

Even if the occupational and educational coefficients had a sounder basis in the original analysis, changing patterns of development undermined the projections within brief time periods. The manpower approach was also critized for ignoring price influences on market demand and supply, and for allowing no meaningful cost benefits comparisons among manpower demand and supply alternatives. Manpower analysts could get around some of the limitations in practice by incorporating additional information of the kind outlined in the second and third columns of Schema 4.1. The additional information could be incorporated into the workforce structure provided by the basic methods, but there were no general models or analytical techiques for doing this. The additional data were simply patched in.

Woodward (1974) showed how cost-benefits and manpower requirements might be linked conceptually, but there was no translation to practical applications. Somers and Woods (1969) and Hardin and Borus (1971) linked cost-benefits and manpower analysis. Freeman (1975) developed [illegible]mulation for incorporating supply and demand into the analysis [illegible] recommended using additional information, of the kind [illegible] mn three of Schema 4.1, to modify the basic forecasts, as, for [illegible]ple, tracing the effects of scholarships in increasing enrollments. In practice, analysts had often made use of this information, but not within a general model or set of analytical pro-

cedures. This is still the case in practice. A basic forecast or structure is developed and projected, and additional information is fitted into the result. Modifications are made in successive rounds.

The Basic Method, applied without much elaboration or addition of labor market and educational supply information, is illustrated in the work of Platt, Loeb, and Davis in Chile (1964). This work is used as a first case example in the accompanying volume on methods. Work done by Charleson and Davis in Venezuela, described by McGinn and Davis (1969), represents an improvement over the Basic Method by incorporating input-output relationships of the industries and more specific educational information. This work was still deficient in analysis of labor market and supply characteristics. Work done by Zymelman, Schiefelbein, Bakker, Davis et al. in the Dominican Republic (1974) represents still further improvement in the incorporation of labor market analysis into projections which used the alternate method.

Leicester (1971) linked manpower planning into a national econometric model, and Purkiss (1970) developed a model for manpower planning within industries. Smith (1970) and Clough (1974) review these and other model developments in the United Kingdom. Thias and Carnoy in Kenya (1972), Kim in Korea (1973), and Dougherty (1971), using Colombia data, attempted to link rate-of-return and manpower planning and thus bring price and wages into supply-demand forecasts Conceptually, models which link manpower projections to rate-of-return analysis are superior to manpower forecasts without rate-of-return analysis In practical planning applications, however, the analysts have had to make broad assumptions to get around the problem of missing data Reality has been sacrificed, and the models have not served for policy planning applications.

Among the more recent applications, the work of the World Bank in Saudi Arabia should be noted The World Bank group has developed a compound manpower requirements and educational planning model which links model blocks that cover the current workforce stock and wastage over time, manpower requirements forecasts, and forecasts of the supply of education-training programs The requirements and supply forecasts are compared, foreign imports of labor requirements are estimated, and supplies educated and trained national manpower can be allocated under varying sets of priorities The linking of manpower requirements and educational supply forecasts in comprehensive and compound planning models is dealt with in detail in Volume II.

The manpower forecasts in comprehensive models are still built on the same Basic Method which forecasts employment by sectors and occupations according to growth in product and productivity. The model does not escape the limitation of having to assume fixed coefficients to reflect occupational and educational distributions. No systematic method really escapes this problem, although the

modification of the coefficients by additional analysis and market information lessens the problem and improves the estimates. Nor does any method escape the criticism that conditions change and forecasts can be wrong after a few years of elapsed time in the real world. This plagues all forecasting methods, and not manpower planning alone. Yet, forecasts have shown some agreement with subsequent events.

Assessments of the state-of-art in manpower forecasting indicate that some forecasts do have reasonable accuracy — that is, the forecasts do agree with the way things come out at some future date. To check manpower estimates which were being used as targets in a comprehensive planning model, Chilean planners assessed several past manpower forecasts and found that some of the forecasts were close to subsequent developments (Schiefelbein and Davis 1974). It has been mentioned that this does not demostrate that things came out as they should have or that the manpower requirement forecasts had any desirable effect on developments

The U S Bureau of Labor Statistics, in an attempt to assess the accuracy of its own manpower projections, has evaluated the ten-year forecasts from 1950 to 1960 (BLS 1974) Of 108 occupations, only nine were dead wrong, another 21 were substantially off, but in the predicted direction (generally because of under-estimates of the growth rates in expanding sectors), the remaining 77 were basically accurate In the United States, manpower planning has been supported under recent legislation,especially CETA (Comprehensive Employment and Training Act of 1972) CETA uses manpower analysis in the development of vocational education and training programs for areas and localities There has been less interest in manpower forecasting at the national level, as in developing countries, but activity has increased rapidly at state and local program levels in the United States There has been national level support for improving the methodology and exchanging information and assistance

The application of manpower planning has been so widespread and varied in developing countries that it is difficult to assess its overall validity and usefulness, unfavorable experiences in Thailand are balanced by favorable ones in Taiwan, within India there are contrasting experiences by states and areas, recent experience has been promising in Paraguay, inconclusive in Saudi Arabia, and discouraging in El Salvador

There is sufficient accuracy and usefulness in manpower planning so that it has persisted through two decades of economic planning in developing countries In recent years, manpower planning is increasing in the United States and seems to be holding steady or increasing in other countries The demand for manpower planning seems to be increasing, especially for micro level analysis of requirements for special sectors, such as health, key industries and modern agriculture, for special localities, such as regional, state, and local areas, and for special institutional auspices and programs

5.0 *Alternatives to Manpower Planning*

Before speculating on the reasons for the persistence of manpower planning, in the face of weaknesses in the theory and methods, and criticisms of the results, it is worth noting briefly that there are alternatives to manpower forecasting. These alternatives can help to adjust the supply of education and training to the demands of the economy. More accurately stated, there are mechanisms for improving the fit between education and work. Improving this fit is the main purpose of manpower planning in education.

Adjustment mechanisms can be applied to both the demand and supply side of the fit, and some policies can affect both sides simultaneously. Nonformal education and training can, in theory at any rate, adjust supply to changes in demand in the workforce, cut down lag-time between training and employment, and be desigend to fit the work so that performance required in the job is the outcome of the training. On the requirements side, jobs and work can be rationalized and reshaped Work has been shaped to fit workers where there has been mobilization as in China, and in England, Russia and United States. In training workers for new enterprises in developing countries, and for dams and other large infrastructural projects, workers have been fitted to jobs, and jobs have been changed to fit workers The work processes can be rationalized and simplified and can be redesigned to fit the knowledge, skills, and capacities of the workers. The training can be redesigned accordingly.

Adjustments can also be affected by price and wage changes, sometimes under policy control and sometimes not, that will serve to modify balances in supply and demand Retraining, on and off the job, and employment support efforts, which cover identification of job vacancies, information on vacancies, and support for entry, mobility, and relocation, can also affect demand and supply adjustments. (Note that these efforts often are part of manpower analysis and planning through establishment surveys and labor market analysis) Work counseling along with job support, and educational counseling along with scholarship or other subsidy programs, can also affect supply. The provision of education and training that prepares future workers to adapt to changing work requirements has been an age-old aim of general and basic education The notion has been further developed recently within vocational education through training for job families, or clusters, thus increasing the flexibility and adaptability of the trainee and worker To supplement basic preparation and training, programs offer intermittent training and retraining over a worker's work life and career With all the adjustments of the demand and supply side available, it seems reasonable to ask why manpower planning, based as it is on long range forecasts and therefore vulnerable, is used at all. The closing sections of this chapter will advance some opinions on this.

6.0 *The Reasons Why Manpower Planning is in Demand, and Sometimes Used and Useful*

The manpower requirements approach to education planning is in demand. Manpower requirements are used to guide education plans, and sometimes this approach is useful. The reasons the approach is used are the following:

Education prepares for work. Education as a preparation for work may be viewed along a continuum: it ranges from broad general education designed to develop knowledge, skills, and attitudes; to professional education which fits people with a broad knowledge shaped to a practice; to vocational training which is directed toward a narrower band of job performance requirements; and to work-based training for a specific task or set of tasks which define a job. Manpower planning helps to adjust education to work requirements at any point along this continuum.

Education-training can enhance work performance, which in turn may lead to increased productivity and production. There is enough plausibility in this assertion, despite the fact that it has never been fully demonstrated, so that policy makers can justify their investment in education-training on the basis of a return through enhanced productivity and output. Manpower planning can be used both to guide the investment and to justify it by asserting the close relationship between education and productivity.

Education can be used to certify workers for occupational membership. This certification seems more efficient, effective, and at least as ethical as any other known basis for ascribing status. Manpower planning helps establish and regularize the relationship between education and occupation, and can be used to improve the fit between the two.

Manpower planning asserts a straightforward relationship between workforce requirements and education-training programs. Despite its weaknesses, the method can be understood by decision makers, explained to the public, and used as a basis for justifying investment in education. Manpower plans are understandable to clients served by public education programs.

6.1 *A Summary Comment on Manpower Planning and Education*

Manpower planning is sought after and sometimes used as a basis for justifying investment in education because there is a generally accepted rationale which asserts the relationship between education and work. On the demand side, employers require certain levels and kinds of education, and on the supply side, programs are designed to prepare for professions and occupations. Employers may use education and training as a credentialing and selection device, as asserted by Berg (1970). Or education may promote social docility as the U. S. Marxists (Bowles 1979) assert. Or education may not develop work skills but

rather work habits and social discipline. None of these views counters the basic argument that there is a perceived relationship between education and work. There is also a generally accepted, though not clearly demonstrated, relevance of education to enhanced productivity and production. Hence there is a perceived return to education at the level of both the society and the individual, and manpower planning asserts this relationship. Lastly, manpower analysis deals with the education-work relationship in an understandable and plausible way. For these reasons manpower planning is in demand, and manpower planning is used. This does not prove that it is useful for improving the fit between education, work, and production, although it does suggest that it is useful as a rationale for decision makers who must justify investments in education.

Some professions do relate directly to specific education programs, and manpower planning can address these with less uncertainty, and sometimes improve the fit between education and work requirements. These professions in developing countries are often the higher-level occupations that are key to development. With scarce resources it may be helpful for decision makers to know how well the education system is preparing people for key occupations. The professions may also require a very long preparation time, and manpower forecasts and planning can help by demonstrating the importance of having sufficient lead time.

Manpower forecasts can also show that the education and training system are preparing too many people for these professions This may do no harm if resources are sufficient, but it is wrong if it takes resources from other groups Manpower planning can equally well be applied to improving equity in allocations, an obvious example being that in which a government provides a heavy subsidy in higher education to privileged classes on the basis of meeting key manpower needs, and at the same time denying these resources to the basic education and training of less privileged groups Manpower planning has been used to show this (Dominican Republic 1974). The fact that manpower planning does not always address these issues does not suggest that it cannot It has sometimes been used to raise these social equity issues, but even when it reveals these inequities, nothing much may be done to change the situation In this regard manpower planning is no more effective than any other social planning approach

Manpower planning can also be useful for indicating shortages in certain skill areas and for stimulating the development of needed training programs There are, however, adjustment mechanisms in addition to manpower planning and training that can improve the fit of manpower requirements and training, in the short run, for lower-skill occupations

Manpower planning can also be useful for assessing the feasibility of planned economic growth, for probing structural employment problems, and for indicating imperfections in labor markets. This is less

directly related to education and is often outside the area of concern or competence of education planners.

Manpower planning can also serve to create an aura of economic value for general education and thus attract allocations to education that will serve cultural and social, as well as narrow economic ends. It is not mere cynicism to use manpower planning to justify increased investment in social services, including general education. It may be inefficient, however, when the investment is excessive, to the prejudice of other needed investments. Manpower planning can help in making this contrastive assessment.

Manpower planning can also improve education and training by providing feedback signals that guide the developers of educational policies and programs. Employment and successful job performance are the true criteria of sucessful training.

The fact that manpower planning does not always serve such uses, that it sometimes can be twisted to serve precisely the opposite ends, does not destroy the argument that it can serve and be useful. The same perversions of results to unwholesome or useless ends is possible, with any analysis or planning approach. It is not a feature unique to manpower planning.

CHAPTER 5

The Rate-of-Return Approach to Educational Planning

MARITZA BARRIOS AND RUSSELL G. DAVIS

1.0 *Introduction*

The basic approaches to educational planning at the national level are said to be three: (1) Social Demand; (2) Manpower Requirements; and (3) Rate of Return (Blaug 1967; Psacharopoulos 1975). Of the three, social demand is the traditional and near universal basis of educational development. Experience suggests that school systems have developed primarily in response to social demand, whatever educational planners claim (Davis 1969). The Social Demand approach has been examined in Chapter 3.

Manpower planning is the favorite approach of planners in the field — if the amount of time and effort devoted to manpower analysis in studies and plan documents is any measure. How often manpower plans are followed is another matter. This issue was dealt with in Chapter 4.

For the past ten years academics and economists of education have favored the rate-of-return approach (Blaug 1969). Rate-of-return evaluates education as an investment which increases earnings. The economics literature until recently has been filled with rate-of-return analyses, sometimes addressed to educational development planning, but often appearing as free-standing research efforts. Blaug and associates have made such studies in India (1969); Carnoy has been an indefatigable producer in Puerto Rico (1972), in Mexico (1967), and with Thias in Kenya (1972), and Psacharopoulos (1973) has tracked down, catalogued, and compared more than a score of these studies. Davis, in a paper delivered to OECD (1969), and Psacharopoulos (1975) have expressed doubts that rate-of-return has been used to guide planning. Meret (1966) criticizes the method. Other economists have expressed doubts about the entire approach (Vaizey 1972; Robinson 1971). The answer seems to be that rate-of-return has been used somewhat less than manpower planning, which has been used less than social demand, which probably was not consciously used as a planning approach at all. School systems may simply have expanded

in response to social demand. Nevertheless, the fact is that rate-of-return studies have filled the literature and shaped the views of educational planners; and on a few occasions may have had some influence on educational plans.

1.1 *Cost-Benefit Analysis of Education as an Investment*

To evaluate education as an investment, the total educational costs are compared to the expected stream of future earnings of those who complete an educational program and enter the workforce. The comparison is made in three different ways:

1. By calculating the *internal rate-of-return*. This is the interest rate that equates the present value of the costs with the present value of the benefits (earnings). This rate of return can then be compared with an alternative rate yielded on other investments, — for example, from investment in some form of physical capital. This internal rate as shown for a given level of education, would be:

$$\sum_{t=1}^{L} \frac{B_t}{(1+i)^t} - \sum_{t=1}^{L} \frac{C_t}{(1+i)^t} = 0 \quad \text{, where} \qquad (1)$$

B=the benefits, usually the earnings summed over the work life (L) of individuals with a given level of education.

C=costs, direct and indirect (earnings foregone) of the given level of education.

i=IROR, the rate of interest that makes the discounted benefits and costs equal. It is solved for by trial and error here.

Internal rate-of-return analysis is usually applied to a comparison of the net benefits (earnings minus direct and indirect costs) of two successive levels of education. The earnings, net of costs, of workers with education level S are compared with net earnings of workers with level S-1 (a lower level). The interest rate which makes the two earnings equal is the IROR, and represents the return on the investment in the additional education S.

2. By calculating the *net present value (NPV)*. This entails discounting the net of benefits over costs, by using the yield on physical capital or on other socially determined rate as a discount factor. The rate chosen for comparison would be used to discount first the benefits to present value and then the costs to present value and finally to compare the two discounted present values:

$$\sum_{t=1}^{L} \frac{B}{(1+i)^t} \quad \text{compared to} \quad \sum_{t=1}^{L} \frac{C}{(1+i)^t} \qquad (2)$$

using the rate i chosen on the basis of other investment yields.

The costs (direct and indirect) may be compared to the benefits in each year and discounted, in which case an equivalent formulation would show:

$$\text{NPV} = \sum_{t=1}^{L} \frac{B_t - C_t}{(1+i)^t} \tag{3}$$

3. By calculating the *benefit-cost-ratio.* This ratio is expressed as follows:

$$\text{B/C} = \frac{\sum_{t=1}^{L} \frac{B_t}{(1+i)^t}}{\sum_{t=1}^{L} \frac{C_t}{(1+i)^t}} \tag{4}$$

The cost-benefit approach is based on a assumption that the analyst is maximizing some outcome, as for example, Gross National Product. The approach requires that costs and benefits be expressed in common units.

In all three cases, the analysis of costs and benefits produces a single index which enables the decision maker to assess the relative "profitability" or attractiveness of alternatives. Internal Rate of Return (IROR) does not require an arbitrary choice of an outside interest rate, as is the case with Net Present Value (NPV). The internal rate is derived as a result of calculations based on the comparison within the given context. Therefore, it is possible to make comparisons of the IRORs among programs even if there is still uncertainty about the return from alternative investments.

To summarize: Rate-of-return-to-education refers to marginal comparisons of schooling. The net benefits (earnings minus costs) of people having schooling level S is compared with that of people having schooling level S-1. The internal rate-of-return is the rate of discount that equalizes the earnings (net of costs) of workers at the two successive levels, and it is expressed as an interest rate.

Both costs and earnings can be viewed from both the private and social points of view; we could speak of costs and benefits to those who receive the education, and also the costs and benefits to the community. The problems to which private and social rates of return are directed are usually very different. In terms of program evaluation and educational planning, where the concern is rational resource allocation on the basis of profitability, the relevant rate is the social rate (SIROR). The private rate (PIROR) is a measure of the economic incentive for individuals to take more or less education. PIRORs help to explain the individual demand for additional education. The so-called social demand for education is never free from the economic influence of the individual demand for education. In educational plann-

ing, rate-or-return analysis is most often applied at the systems-wide level of education, in order to evaluate the investment in an entire level or stage of education, such as primary, secondary, or higher. The notion is that the rate of return can be used to guide broad policy and planning choices about allocation to an entire level of education. Present value and benefits-costs comparisons are more often applied to evaluate investments in specific projects, programs, or institutions.

According to the "human capital" hypothesis, the act of attending an educational program will add value to a person's potential contribution to the economic system. Part of the observed differences in earnings represents increases in productivity as a result of education. In theory, some part of the productivity is attributable to learning that results from schooling. Investment in education is seen as a device for raising productivity and speeding economic growth. Therefore, economists who follow a human capital approach concentrate on the measurement of education as an investment in a producer good, via the calculation of the rate of return, using differences in earning streams as the benefit of the program. Calculation of the SIROR is viewed as a criterion for deciding how much of the nation's resources to allocate to education and how best to allocate these resources within education. Hence it is sometimes used as a basis for planning. The relationships between educational costs and benefits can also be used to assess how effectively present resources are being utilized.

It is important to distinguish between rate-of-return estimates for the evaluation of investments already made — *ex-post analysis* — and estimates for the purpose of planning — *ex-ante analysis*. Many studies of the rate of return in education have utilized *ex-post* information to recommend the reallocation of resources in the future. As pointed out by Psacharopoulos (1973), estimated rates of return are used "...either in an *ex-post* or *ex-ante* sense according to the author's convenience or in order to solve the problem at hand". The distinction between *ex-post* and *ex-ante* calculations and the underlying assumptions and necessary conditions for the use if IRORs estimates as either evaluation or planning tools have not been made clearly explicit in the literature.

When the SIROR criterion is applied to the *evaluation* of an investment in education the following assumptions are made: first, part of the observed differences in earnings by educational level or program represents the net effect of education; second, education increases the productive capacity of the individual, and the earning differential measures the net marginal social benefit of the differential of education; finally, earnings in fact reflect real relative scarcities of the productive quality of educated labor.

When SIROR estimates are to be used for *planning*, the relation between earning differences at different education levels and the rate of expansion of educated manpower must be known. To apply rate-of-return estimates to the future (ex ante) requires the introduction of de-

mand functions for various categories of educated manpower, taking into account labor supply, sectoral growth of the economy, and technical change. This would require, if not a dynamic model of the economy, at least the integration of the two approaches, rate-of-return and manpower requirements planning. In the absence of any information about future developments, if planners use *ex-post* IRORs, they are assuming that relative wages will not change over time. In economic terms this means assuming that the demand for educated manpower is infinitely elastic at the prevailing earnings levels.

In applying the rate-of-return approach, the object of planning is to evaluate how effectively present resources are being utilized and to determine how they might be put to more efficient uses in the future. In the manpower requirements approach, the objective is to project the qualified labor required to achieve the economic targets. Both of these planning approaches attempt to link the development of education to the development of the economic system. The two approaches have a common aim: the maximization of GNP. Therefore there can be no controversy about the basic purposes of the two approaches to planning. The debate can only be between the different economic assumptions which underlie the two different planning methodologies; that is, the two approaches represent different pictures of the economy.

The rate-of-return approach has a neoclassical view of the educational system and the production process. In this view there is considerable substitutibility in the workforce. Workers with different types of education can fill different occupations, and there can be different occupational structures and mixes in the workforce. What is fixed and significant is the amount of general education (knowledge). Outside of the world of the economist this is the idea of the mandarin, the Renaissance man, and the liberal arts graduate. By contrast, the manpower requirements approach takes a Leontief-type view of an economy with fixed input-coefficients. Workers with a specified type and amount of education are required to fill specific occupations, and there is a relatively fixed occupational structure determined by technology. This is a specialists's world, and education and training must be planned so as to produce these required specialists.

Both characterizations above are extreme, and the contrast is more true of positions defended in academic debate, rather than in planning practice. Manpower requirements planners do not treat education and occupational structures as rigid; nor in those instances where rate of return has been proposed as a guide for planning has the notion been advanced that there is perfect substitutibility among workers with a given level of education. Lately, there have been attempts to bring the two approaches together, by theoretical exposition, as in Daniere (1965) and Woodward (1974), and in research studies by Thias and Carnoy (1972), Puntasen (1973), and Freeman (1975b).

1.2 *General Issues Raised by Rate-of-Return Research*

Apart from the question of the direct applicability of rate-of-return analysis to planning and policy formulation within a given context, the results of rate-of-return research raise certain policy issues that may be of general interest to planners.

Table 5.1 presents the results from different studies in developed and developing countries on the returns to investments in the formal educational system. A formal comparison of these studies is impossible because the IRORs results from different assumptions about individual ability, socioeconomic background, economic growth, unemployment, and direct and indirect costs of education. The problem of comparability of results is compounded because of different educational structures and schooling years. In some cases higher education refers to a period of liberal education at the undergraduate level; in other cases, for example, in the Latin American countries, higher education refers to a terminal level of professional training. Notwithstanding these limitations and noncomparabilities, certain broad generalizations can be made. The following patterns, previously described by Blaug (1970) and Psacharopoulos (1973), emerge:

— The IRORs decline by level of education; the average social rate for primary education is 19.4% (excluding rates reported to be infinite), for secondary 13.5%, and for higher education, 11.3%. Private rates also decline by level of education in the case of primary and secondary education (23.7% and 16.3%, respectively).

— Social rates on elementary and secondary education are reported to be higher than the yield of alternative investments in physical capital.

— Fourteen cases show higher return for men, while the remaining seven cases show higher returns for women. These results indicate that the difference between the earnings of more and less educated women is smaller than the difference between earnings of more and less educated men. They say nothing about differences between earnings of males and females. In all the countries, on the average, men make more than women from the investment in similar levels of education.

— Private rates of return are about 3 to 6 percentage points higher than social rates. The difference between rates is more pronounced in LDCs, especially at the higher education level. In LDCs, governments carry more of the costs of higher education. Private rate of return is high because the university education of more affluent groups is subsidized by free, government supported programs. The use of the divergence between private and social rate of return to demonstrate inequity in allocations to education will be dicussed later.

— When rates are available for the Bachelor, Master, and Ph.D., the order of ranking is B.A. > Ph.D. > M.A. Evidence about the

Table 5.1 *Private and Social Rates of Return by Educational Level and Country*

Country	Author(s)	Sample year	Elementary Schooling		Secondary Schooling		Higher Education	
			Private	Social	Private	Social	Private	Social
Venezuela	Shoup (1959)	1957	—	82 0	18.0	17 0	27.0	23.0
Puerto Rico	Carnoy (1967)	1959	> 100	17.1	23.4	21.7	27.9	16.5
Mexico	Carnoy (1967)	1963	32 0	25 0	23 0	17.0	29.0	23.0
Colombia	Selowsky (1968)	1966	> 50 0	40 0	32 0	24.0	15.5	8.0
Chile	Harberger & Selowsky (1966)	1959	—	24.0	—	16.9	—	12.2
Brazil	Hewlett (1970)	1962	11 3	10.7	21 4	17.2	38.1	14.5
Greece	Leibenstein (1967)	1964	—	—	5.0	3.0	14.0	8.0
Turkey	Krueger (1971)	1968	—	—	24.0	—	26.0	8.5
India	Blaug et al (1969)	1960	24 7	20.2	19.2	16.8	14.3	12.7
Malaysia	Hoerr (1970)	1967	—	9.3	—	12.3	—	10.7
Singapore	Clark & Fong (1970)	1966	—	6.6	20 0	17.6	25.4	14.6
The Philippines	De Voretz (1969)	1966	7.5	7.0	28.0	21.0	12.5	11.0
S Korea	Kim (1968)	1967	—	12.0	—	9.0	—	5.0
Thailand	Blaug (1971)	1970	56.0	30 5	14.5	13.0	14.0	11.0
Hawaii	Psacharopoulos (1969)	1959	> 100	24.1	5.1	4.4	11.0	9.2
Nigeria	Hinchlife (1969)	1966	30 0	23 0	14 0	12.8	34.0	17.0
Ghana	Hinchlife (1971)	1967	24.5	18.0	17.0	13.0	37.0	16.5
Kenya	Thias & Carnoy (1972)	1968	32 7	21.7	30.0	19.2	27.4	8.8
Uganda	Smyth & Bennet (1967)	1965	—	66.0	—	28.6	—	12.0
Canada	Podoluk (1965)	1961	—	—	16 3	11.7	19.7	14.0
Great Britain	Layard et al (1971)	1966	—	—	6.2	3.6	12.0	8.2
Norway	Aerrestad (1969)	1966	—	—	7.4	7.2	7.7	7.5
Sweden	Magnusson (1970	1967	—	—	—	10.5	10.3	9.2
Denmark	Hansen (1966)	1964	—	—	—	—	10.0	7.8
The Netherlands	De Wolff & Ruiter (1968)	1965	—	—	8.5	5.2	10.4	5.5
Belgium	Desaeyere (1969)	1967	—	—	—	—	17.0	9.3
Germany	Schmidt & Baumgarten (1967)	1964	—	—	—	—	4.6	—
Israel	Leibenstein (1967)	1958	27 0	16.5	6.9	6.9	8.0	6.6
Japan	Bowman (1970)	1961	—	—	6.0	5.0	9.0	6.0
New Zealand	Ogiluy (1968)	1966	—	—	20.0	19.4	14.7	13.2

Sources: Compiled from Psacharopoulos (1973), Table 4.1 and Appendix C (pp. 166-172).

returns to different fields of higher education is scanty, and no valid generalizations can be made.

2.0 *Issues Raised Concerning the Basis for IROR Estimates*

Six major objections are directed at analysis of rate of return to investments in education. Most of these objections apply only to the calculation of social rates of return.

First, rate-of-return analyses in education usually take the difference between the earnings of more and less educated individuals as benefits attributable to additional education. These differences could just as well be attributable to other factors, such as ability and socioeconomic background (Renshaw 1960; Bowen 1964). The earnings attributed to schooling may derive from experience or training on the job (Sobel 1978). The human capital hypothesis of a connection between education and higher earnings through increased productivity has been challenged and the theory branded as the Great Training Robbery by Berg (1970). Many have argued that higher earnings are a result of the "credential" or "signal" provided by the educational establishment.

Second, RORs assume that wages are a valid measure of productivity. If the calculated rates of return do not reflect real relative scarcities of productive qualities of educated labor, then the usefulness of those rates for policy making is called into question (Eckaus 1973). Market imperfections make earnings a poor measure of productivity. In many LDCs, monopoly elements, tradition-bound wage structures, and excessively high credentials required for a given job distort the measurement of the economic pay-off of education (Bowen 1964). The strongest objection has been made by J. Vaizey: "There is no necessary validity of income distribution at present as a system of returns to effort, talent, merit or skill; the wage system is in fact, a system of administered prices, not market prices. Therefore these measurements are measuring imperfections so serious as to invalidate the results if they are used to estimate returns to education" (J. Vaizey 1970: 142).

Third, IROR measures the profitability of past levels of investments on the basis of the present relationship between supply and demand. The rates may measure the returns to investments already made, but they may not remain valid for further investment since both wage differentials and costs are likely to change over time. IRORs as calculated can serve as a basis for future plans and policies only if the present relationships between supply and demand is maintained into the future

Fourth, the use of earning differentials as a benefit overlooks the impact of unemployment and consequently overestimates the profitability of investments in education.

Fifth, social rates of return are consistently underestimated because no allowance is made for the consumption benefits of education, or the political, social, and psychological benefits of having an educated population. Increased earnings are less important than indirect or spill-over benefits such as income redistribution, increased social mobility, improved political leadership, favorable changes in attitudes and values, and the intellectual and moral development of the population.

Sixth, by taking prices and income data as "given", the planner accepts as given the existing, and often bad, distribution of property, wealth, and income, as well as the existing distribution of workforce positions. These parameters condition the value of estimated IROR (Chamberlain 1969).

The next section will examine the conceptual and methodological issues in estimation of benefits and costs. The analysis will focus on how different authors have responded to the major criticisms and on the adjustment and assumptions introduced into the calculations of particular studies.

2.1 *Methodological and Conceptual Issues in the Estimation of Benefits*

The private benefits from higher education are the increased earnings, after tax deductions, which result from a college degree. Specifically, this refers to the difference between the net earnings from a job requiring a high school education and the net earnings from a job requiring the completion of higher education The social benefits are the sum of the private benefits plus tax payments associated with the additional earnings. (Social benefits may also include "external" economic and noneconomic benefits which the individual cannot capture.)

Age-earnings profiles are often based on cross-sectional data, and this fact may affect the results. Cross-sectional earnings data are data gathered at one point in time. The earnings of people with a given level of education are calculated for each age group — for example, four-year-college graduates in the 20-24 age group. The earnings of four-year-college graduates in the next age-group, 25-29, are then calculated, and so on through the age groups in the work force. The earnings of the successive age groups are then spliced together to form, or simulate, a longitudinal or lifetime earnings profile of workers with a given level of education Note that because this profile is built up from cross-sectional date, it is not based on the earnings of the same people or even the same population cohort. Age-income profiles based on cross section samples reveal the following characteristics (Blaug 1970).

— All profiles, irrespective of the years of schooling or level of

education attained, increase with age up to a maximum point somewhere after the age of forty, and then level off. In some cases they decline.

— The higher the educational attainment, the steeper the rise in earnings throughout the early phases of working life, and, usually, the higher the starting salary.

— The higher the educationl attainment, the later the year at which maximum earnings are reached.

The argument is made that cross-sectional data affect the results and that lifetime earnings should be based on the earnings of cohorts of individuals, with data gathered in a longitudinal study, which means data gathered over time (Eckaus 1973).

The users of cross-sectional data support their methodology with the following arguments: (i) evidence from longitudinal studies is rarely available; (ii) cross-sectional data (unlike true series data) are free from the influence of the business cycle; (iii) the data implicitly provide estimates of earnings in money of constant purchasing power; (iv) the average student forms expectations of future earnings by comparing the *present* earnings of adults at different ages with various amounts of education; (v) both cross-sectional earnings and longitudinal studies have the same problem of applying *ex-post* knowledge to the *ex-ante* estimation of the future.

Becker (1964) suggests adjusting cross-sectional age-income profiles for some average rate of growth based on past experience. This removes the decline at older ages observed in cross-sectional data. This adjustment is a partial solution at best. Even when corrected for economic growth, the rates can show the future yield of a given education level, *only if* the demand and supply of people with relevant amounts and types of education grow at the same rate in the future. Limitations in the method are sometimes not clearly laid out, and policy makers are left to make their own interpretations: "When compared among themselves, the finally adjusted rates will show at which levels educational expansion is economically best justified from the family and government points of view in *present* circumstances" (Thias and Carnoy 1972-63). Clearly, the results are phrased so as to influence policy planning. But, as with almost all policy research in the world, it is almost never possible to judge whether policy is actually affected by such statements.

Many IROR studies make policy recommendations, even when the assumption of infinite elasticity of substitution between different types of educated labor is difficult to support. Plans based on *ex-post* rates of return, despite corrections for productivity increases, may be unsatisfactory, when IROR is applied in an economy which is undergoing changes in technology and in the occupational structure of the labor force. Plans and policies based on IROR estimates must be supported by additional information about future demand and supply conditions.

Thus, the third general critique of standard rate of return analysis — that it measures past investments — is applicable.

2.2 *Adjusting the Education-Earnings Relationship for Ability*

Private and social rates cannot be based solely on age-earning differences. There must first be adjustments to correct for the influence on earnings of ability, socioeconomic background, unemployment, labor force participation, and hours of work. These adjustments to the benefit side of the calculations will be reviewed.

Educated workers are more likely than uneducated workers to have superior ability and social background. Thus, earning differentials cannot be used as a measure of the pure effects of education. In 1962, Denison in his study on the sources of economic growth in the United States introduced a factor of .60 to adjust earning differentials and thus use earnings as a quality of labor index. Later, using data from a study done by D. Wolfe and J. Smith, Denison estimated the 67% of the earning differential was due to education (Psacharopoulos 1975). Several studies reviewed by Becker (1964) suggest that roughly two-thirds of earning differentials of educated workers can be explained by their education Based on these results, many empiracal estimates of the IRORs have adjusted the age-earning profiles by multiplying each differential by a coefficient of 66. This factor has been called the Alpha Coefficient The quantity (1 — alpha) is a catch-all factor for "everything else", other than education, that causes earnings to differ.

The development and use of the Alpha Coefficient, and similar adjustments, respond to the fact that relationship of education and earnings are influenced by effects of ability A portion of earnings is not, therefore, attributable to education This issue has been dealt with in various ways in rate-of-return studies

- The rate-of-return results are reported without adjustment by Hansen (1963)
- Becker's (1964) adjustment coefficient of 66, or some other Alpha value, is adopted and applied
- The report of the results is qualified by mentioning that it is reasonable to make an adjustment in interpretation, and this is left to the reader to make (Carnoy 1972).
- Adjustments are made by retabulating. Essentially, this means comparing the earnings of workers at two different levels of education, after retabulating to get comparable average IQ's. Earnings of college graduates are compared to earnings of high school graduates with the same average IQ's
- Multiple regression analysis is used to separate out the "effects of ability" on earnings from the effects attributable to education.

Both "effect" and "ability" require comment. An IQ measure is used for "ability" and, of course, this is already confounded by effects of education. Multiple regression can also be used to separate the effects of social class and other relevant variables. The term "effect" also requires comment, because unstandardized regression coefficients measure a relationship which may be either cause or effect.

— Sometimes IROR results are presented without adjustments, and comparisons are made with results which assume different values of the "Alpha", or adjustment coefficient (Blaug et al. in India, 1969).

In summary, it seems plausible that ability does affect the education-earnings relationship. Adjustments are made; adjustments are approximate; and this should be kept in mind by planners who would use IROR in their work.

2.3 *Earnings and Differences in Productivity:*

Another objection to rate of- eturn analyses is that earning differentials do not adequately measure differences in the productivity of the workers because of imperfections in the labor market. Monopolies, marketing arrangements, union activity, government employment criteria, minimum wage laws, subsidies, regulated payment scales, all introduce distortions that cause wages and salaries not to reflect true labor productivities.

Various attempts have been made to adjust for this in IROR studies Psacharopoulos (1970) attempted to estimate social rates of return on the basis of shadow wages from the dual of a linear programming exercise. Woodhall proposed calculating different rates of return on different assumptions about marginal productivity and relative wages (1971). The general belief seems to be that though the matter is serious it does not destroy the validity of the rate-of return concept.

2.4 *The Effects of Credentials and Screening on Returns to Education*

It is argued that earnings differences by years of schooling represent not the product of schooling but rather the fact that employers use education as a credential and screening device There is no unambiguous answer to this screening hypothesis. Empirical studies by Taubman and Wales (1973) suggest that screening might affect the social rate of return by as much as 50%. Layard and Psacharopoulos (1974) argue on the basis of a comparison of returns to people completing and not completing educational programs that the credential effect is not all that important. In general, the credential hypothesis raises important questions, and there has been no resolution of these issues in studies done to date.

2.5 *Other Issues in Rate-of-Return Analysis*

A number of other issues are raised by both critics and advocates of rate-of-return analysis:

Adjustments for unemployment

Rate-of-return studies are based on the earnings of employed workers, and the effects of unemployment are often omitted from the analysis. Census data can be incorporated to adjust for unemployment.

Adjustments for mortality

Lifetime earnings profiles assume that individual workers will live to retirement age. Some analysts have suggested a downward adjustment of rates to reflect the possibilty of earlier death Some countries have work-life tables (rates based on mortality and retirement) which could be used to make adjustments. Inasmuch as educated people have lower mortality, this adjustment does not seem to have a very significant effect on returns to higher education

Adjustments to hourly earnings

Rates-of-return are usually calculated on annual earnings, and Eckaus (1973) argues that hourly earnings would be a more accurate measure because earnings differences may reflect more or less time worked rather than enhanced earnings for time worked. Evidence on the magnitude and significance of standardizing earnings for hours of work is currently being examined.

Fringe benefits and non money rewards

Workers with more education may receive more fringe benefits and non-money rewards, and there have been suggestions that IROR's understate returns to higher educational attainment. Data gathered on labor market surveys in most developing countries would permit adjustment for other forms of income Lucas' work (1977) suggests that private rates of return are underestimated when these extras are not included In LDC's, these extra benefits are particularly significant for workers in modern sector industries, and in general for workers in the organized jobs of the primary labor market

3.0 *Issues Raised in the Estimation of Costs*

Despite the fact that the issues of costing are no less troublesome than the issues of benefits, and costs often have a heavy effect on the rate-of-return calculations, there is less debate about costs. This may be because the issues are less interesting to economic theorists.

3.1 *Cost Definitions*

In the calculation of rate of return, the private costs of education include direct costs in the form of tuition and fees, books, and other incidental costs over and above living expenses. Indirect costs include income foregone (after tax).

Social costs include all private costs plus income foregone after tax. Social costs also include the expenses of operating the program which are not covered by tuition and fees. In addition, social costs include the annualized value, or rent, on building and equipment.

Though complex analyses of economic benefits using earning functions have been made, the cost side of the accounts has been treated more casually. Many questionable and arbitrary assumptions have been made in IROR estimates. Problems and costing issues are raised by all the studies reviewed, but costing is particularly difficult in university level programs.

3.2 *Costing Procedures (Mainly at University Level)*

The problems and issues raised in costing are the same, whether the analysis is applied to calculating rate of return or to other general tasks in educational planning. The standard per student costing procedure used in the calculation of social costs is to take official expenditure statements and budget figures and divide the bottom line by the number of students in any given period. As in planning generally, unit costing in this form may be reasonable for elementary and general secondary education, but for vocational and higher education, costs must be estimated for each specific field. Disaggregated cost information from accounting records is required

In planning, the total costs for a project that lasts several years are discounted to present value, or an annuity factor is used to turn the cost into annualized or amortized costs Jamison, Klees, and Wells (1975) show that cost estimates differ markedly, depending on whether a discount factor is applied to the costs over time. They apply a discount rate to the total costs, but they also state that since the total number of students ever served by the project do not use the project for an indefinite period, the number of students, the denominator of the cost ratio, should also be discounted This refinement has not yet come into wide practice in planning, but the issue it raises is an interesting one If costs are to be discounted why shouldn't use or participation also be discounted?

Budget figures either at the institutional or national level usually do not include all the social costs but at the same time they may include certain noneducational expenses. These include costs for research, public museums, residential and dining accommodations, and all expenditures that would have been made elsewhere if students were not going to school. Another problem comes in the accounting of transfer

payments in the form of subsidies to local governments or private institutions from the national government. When these funds are spent, they may appear again as expenditures in the local or institutional budget. Expenditure data from the private and public sectors — both state and national — cannot be added without adjusting for transfers.

Evaluations of the Social rate of return to different programs of higher education cannot be made without information on specific per student costs from at least a representative sample of colleges and universities. This would require the application of full-cost accounting techniques. The basic frameworks for conducting the analysis of cost and financing were developed in the National Center for Higher Education Management Systems (NCHEMS). (See, for example, Technical Report 26, *Cost Finding Principles and Procedures*, published in 1971). In the United States a basic framework is provided by two basic documents: *Interim National Standard Procedures for Deriving Per Student Costs in Post Secondary Education Institution* (a staff paper put out by the National Commission on the Financing of Post Secondary Education); and *College and University Business Administration* (a manual of the National Association of College and University Business Officers). Full costs include not only the costs attributable to instructional programs, excluding expenditures in research and other non-instructional activities, but also some portion of the costs of operating support activities, and a portion of capital expenditures.

The classic problem in cost analysis in higher education is how to assign expenditures to individual programs in a multiple-program environment. Joint product costs raise issues when costs are related to outputs. An example of joint product cost is the salary of a faculty member who is engaged in a research project that has instructional and research outputs. In the case of joint products, total costs can not be uniquely allocated to separate outputs, and the attribution is arbitrary.

In order to allocate total costs among instructional programs and other activities, the standard procedure is to conduct a faculty-activity analysis. The share of faculty effort to each program is identified, and all direct costs are assigned proportionally. Indirect and capital costs are then allocated by using a number of criteria related to intensity of resource utilization. The cost of physical capital may be represented by either the annual lease value or the annual depreciation charge on buildings and equipment, plus an imputed interest charge reflecting what the capital would earn in some alternative use in the economy. A unit cost per student is finally obtained by dividing total program cost by the number of credit hours taken by students enrolled in the program.

Data produced by cost accounting procedures are essentially "cost observations" — one-time measures of program costs for a fixed and known educational technology. The real costs of education may change

as teachers' salaries rise or when there are changes in educational technology. The application of rate of return in educational planning requires the inclusion of any predictable change in the cost side of the calculation. When discounting over time, adjustments which affect the costs and which occur early have a greater effect on the IRORs than adjustments which affect the benefits and which occur later.

4.1 *Application of Rate of Return in Policy Analysis and Planning*

Rate-of-return results may be validly applied to some planning tasks, but in other applications the validity of rate-of-return results appears doubtful. A fundamental distinction should be drawn between the use of rate-of-return estimates in policy and program analysis, and the use of rate of return to forecast the future. The first use, termed *ex-post*, is exactly what is done with any other research or evaluation results in social science — findings based on analysis of conditions in the immediate past are applied to assess the present. The second use, termed *ex ante*, is also widespread in social science. The application is often invalid, but because forecasts are in demand, researchers and planners attempt to get around the difficulties of extrapolating past results to future conditions. These attempts will be examined later; at this point our concern is with application of rate of return to the assessment of current policies and programs, mainly in developing countries.

In many developing countries a large share of the costs of education at post-secondary level is borne by the government. Inasmuch as groups from favored social and economic classes are more likely to go through the primary, middle, and secondary schools, and thus be eligible to enter higher education, the government often pays the costs of education of those who could most afford to pay out of their own resources. The government provides a subsidy to the favored and the *private rate of return*, for the favored individuals may come out higher than the *social rate of return*. The PIROR's and SIROR's diverge. In this situation the results of the rate-of-return analysis applied *ex-post* may be useful in educational policy analysis in the following ways:

- In identifying excess demand (called "social") for higher education;
- In analysis of the distribution of burdens and benefits in education;
- In the development of strategies for financing education;
- In the identification of shortages and surpluses of educated people.

First, let us examine whether rate of return is useful in identifying excessive demand for higher education. This demand is often referred

to as social demand. Presumably, when rate of return has been used to demonstrate excess social demand it will influence politicians and decision makers to reduce this demand.

In developing countries where public funds allocated to higher education could be profitably deployed in alternative ways and where education persistently expands in the face of educated unemployment (the history of India and Sri Lanka are classic examples, but the condition has been far more widespread), one explanation is that private rates of return continue to be high for individuals even when social rates of returns are low The reason given is that the government subsidizes the higher education costs for middle-class students. Also, with high unemployment the opportunity costs (wages foregone by being in school) are low (Blaug 1969). In theory, analysts can use the divergence in social and private rates to highlight this condition and thus affect policy. In fact, no such thing happens. There is no need for arcane statistics — and rate of return is not a topic of the people — to convince anyone that the use of public funds to subsidize the higher education of favored groups may be socially regressive and economically wasteful. Other and more obvious evidence of this folly abounds. The policy of free education for the affluent persists because members of the favored groups have the power to maintain their favored status. Apart from the economic returns to education, there are powerful, psychic returns from education for individuals, cultural returns to groups, and attached status and prestige for governments; and these are sufficient to influence any political leader who might be persuaded in the opposite direction by divergent social and private rates of return. Decision makers and administrators may deplore the divergence between social and private returns but they will not confront the political risk of changing policies and programs based on this line of argument.

A second claim made for rate of return is that it is useful for analyzing the distribution of burdens and benefits in the provision of government-supported education. The first two alleged uses of rate of return are similar in that they arise in the same problems of inequity in the distribution of social services. They are also related because of the fact that economically favored groups have more access to subsidized higher education as a direct result of greater access to the lower levels of secondary, middle, and primary education requisite for establishing the eligibility to enter higher education.

Issues of equity in education and its economic consequences are treated comprehensively from an economic and sociological perspectives in Chapters 8 and 9. In these studies of the equity issue, it is not apparent that rate-of-return results are used as an indicator of inequitable distribution of education and the benefits deriving from it. Simple and direct analysis of entrance and enrollment statistics classified by the social, economic, cultural, and regional status of various groups is a much more powerful indicator of inequity in the

distribution of education. More recently, the Gini coefficient, which is an index of balance in the distribution of an economic or social benefit within a population, has been used to highlight distributional inequities (see Chapter 9). Rate of return is a somewhat less understandable indicator of inequitable distribution than is access and enrollment statistics or distributional indices such as the Gini coefficient.

A third proposed use of the rate of return *ex-post* is for developing the basis of alternative strategies of educational financing. Divergence between social and private rates, and also high social rates of return to certain fields of education, can give signals which can be used by planners and policy makers to develop taxation programs, scholarship programs, or changes in fee structures, so as to encourage entrance and completion of some forms of professional education rather than others. Maurizi (1975) and Rogers (1972) used private rates of return to analyze the consequences of alternative schemes of financing education and to trace the impact of these schemes on the profitability of additional education. Government decisions on taxation, subsidy, scholarship and loan, and changed fee structures in public higher education can be based on rate-of-return analysis. Changes in such policies and programs will change costs and influence the demand exerted by parents and students.

Lastly, IROR has been proposed as a basis for analyzing shortages and surpluses of certain types of educated workers. Here, rate of return serves as an alternative to manpower planning. Results of rate-of-return analysis can be used to show the relative benefits of having invested in more or less education, but they can tell little about the kind and amount of education required. Hence, even in *ex-post* terms, rate of return is not a substitute for manpower planning, but it *can* be used to supplement manpower planning.

Rate of return may influence individual demand for certain kinds of education. Also IROR's may influence the supply of certain kinds of education. Therefore rate of return can be incorporated into the supply projections of compound manpower requirements models for planning. Rate of return can also be used to diagnose certain general conditions in the labor market, but the signals are very general. Rate of return can be used, along with social demand approaches, to study the sensitivity of enrollment changes to changes in direct costs, changes in indirect cost through earnings foregone, and changes related to the salaries received by recent graduates. More often it is *ex-ante* use of rate of return that is combined with the manpower requirements approach in planning and forecasting.

5.1 *Rate of Return Applied to Forecasting and Planning*

In considering the *ex-ante* use of rate of return in forecasting and in planning, another distinction must be drawn. Theoretically, rate of return can be used at the micro-level as a partial analysis technique,

adequate for studying marginal changes in programs. This refers to programs with an impact too small to change the structure within which the analysis takes place. Rate of return could be applied to studying the short-term affects of a limited change, as for example, studying the effects of graduating a few scores of lawyers or engineers into a large workforce where the addition will have little effect on wage structures. For long-run planning decisions and for the expansion of large projets — for example, doubling university enrollments by creating a second university in a developing country where only a few thousand students are enrolled in higher education — rate-of-return studies will not provide a basis for estimating future returns to given levels or kinds of education. If the supply of educated workers is expanded by large numbers in the short term, and unless there is a huge upsurge in demand, prevailing wage differences for people with higher education will not hold in the future. Adjusting the rate-of-return calculations by adding in a factor for increased productivity will not change the situation unless demand and supply of people with relevant amounts and types of education grow at the same rate and continue to grow at the same rate.

The use of rate of return in *ex-post* form as a criterion for evaluating past investments in specific levels and kinds of education appears to be acceptable on a conceptual basis. The previous review of four proposed or purported uses of *ex-post* analysis in educational policy development has shown that there has not been much real application of rate-of-return to policy analysis and assessment. When applied in *ex-ante* form to forecasting and future planning there is general agreement that rate of return is at least useful in providing general signals for policy and planning and in supplementing the other planning approaches of manpower requirements and social demand. Blaug (1970) has advanced this proposition, and there has been other support for the view (Somers and Woods 1971; Hardin and Borus 1971 and also Davis and Hudson in Chapter 1). Woodward (1974) has explored a conceptual model for combining manpower and cost-benefits analysis. Rate-of-return results estimated by Schiefelbein were used to supplement manpower studies in the Dominican Republic (1974). In that country a wealth of other information on labor market conditions (starting salaries, recruitment policies, intersectoral and interoccupational mobiltiy) and information on scholarship programs, was used to enrich the basic manpower requirements forecasts. (This is discussed in Chapter 12 of Volume II of this series). The incorporation into manpower forecasts of a variety of labor market information, educational information, and supply data was done without using a general model in the Dominican Republic. We will now review several proposed comprehensive models and methods for combining manpower, rate-of-return, and labor market analysis.

5.2 *Early Developments in Comprehensive Models*

A number of proposals were made for developing comprehensive models and approaches that would combine rate-of-return and manpower requirements planning, and some of these proposals were accompanied by general form models (Adelman 1966); some by implemented models (Bowles 1969); and some by models used in actual planning (Schiefelbein and Davis 1974).

Blaug (1967) recommended incorporating manpower requirements planning and supply demand studies and rate-of-return analysis into some form of mathematical programming model, but no formal model was proposed. Adelman (1966) proposed a very general and highly aggregate linear programming model for Argentina in which the education sector was included along with other sectors. The model was designed to guide the development of the education sector; it was not used for policy planning. Bowles (1969) developed a linear programming model with rate-of-return analyses incorporated into the objective function. Returns to different levels of education were used to weight the objectives of a presumed plan. There were no manpower data in the model but some of the educational data brought the model a bit closer to policy relevance than the Adelman model. Schiefelbein and Davis (1974) developed, and actually applied to planning in Chile, a comprehensive planning model in linear programming format. Manpower requirements were used as targets. Cost-benefits analysis was entered only as a minor feature.

Shin-Bok Kim (1973) developed a comprehensive approach for Korea which covered both manpower requirements and rate of return in the following steps:

— He projected the social demand for education on the basis of demographic growth trends.

— He used a conventional manpower requirements planning approach, with productivity adjustments over time, to project demand for education/training (economic).

— He put these results into a linear programming model and used rate of return as a criterion for choosing education targets optimally between the social demand and the manpower requirements projections. His conclusion was that the optimal enrollments in the educational system should be greater than manpower requirements and less than social demand. Shin-Bok Kim improved on Bowles by incorporating manpower requirements into the model, and improved on Schiefelbein and Davis (1974) by incorporating rate-of-return more generally and specifically into the model. The weaknesses of the Kim model were the use of *ex-post* rate of return and the assumption that these rates, and the relative wage differentials on which they were based, would hold over the planning horizon.

Attempts to improve rate-of-return estimates for use in forecasting and planning require a forecast of the relative changes in supply and

demand for educated labor, and an explicit anlysis of the effects of these changes on differential earnings, and hence on rate of return. A number of analysts have attempted to develop comprehensive or "synthetic" models and approaches which would bring manpower requirements and rate of return together and deal adequately with the problem of *ex-ante* application of rate of return In a final section we will discuss the work of Dougherty (1971), Thias and Carnoy (1972), Puntasen (1973), and Freeman (1975). Their attempts reflect the furthest point in the development of models and planning approaches which integrate rate-of-return and manpower requirements in educationl planning.

6.1 *Comprehensive Models Combining Manpower and Rate of Return*

Dougherty (1971), using Colombian data, attempted to combine manpower requirements projections with rate of return, and to use future rates of return to guide allocations to education. He projected supplies of workers classified in highly aggregated educational categories. This projection was based on historical analysis of flow rates of students. He then projected growth of Gross Domestic Product (GDP) on the basis of growth in workforce and growth of other factors. From this projection he estimated marginal porduct, and from this he estimated wage rates for workers in the aggregated educational categories he had used as the basis for his original projection. From the estimated wage rates he estimated future rates of return. He could then use these future rates of return to guide allocations to present levels of education and thus control enrollments in given levels of education. In using future rates to guide planning decisions for the future, he avoided the problem of applying *ex-post* rates. In escaping the theoretical limitations on the application of *ex-post* rates to future decisions, however, a price was paid. The categories of education used were too aggregated to serve any practical use in manpower or educational planning. This is a general and classic problem, applicable to rate of return and to social science research generally. In attempting to escape theoretical problems, the releance to practicality is assumed away or lost in aggregated and averaged data. In the practice of planning highly aggregated manpower requirements are almost never acceptable to policy makers and program operators. To know the number of post-secondary graduates is minimally useful. Educators want the results for specific fields and programs.

Thias and Carnoy (1972) used Kenyan data and a simultaneous equation model in an atempt to get around the limitation of *ex-post* rates applied to planning. They first calculated return rates for the present. They then projected future supplies of educated workers using highly aggregated educational attainment categories to group the workers. They then projected demand for these aggregated educational types on the basis of time series on salaries, employment, and changes in

GDP. They then re-estimated the wages that would be required to get a target rate of return (10%). On the basis of these wages they estimated the increase or decrease of employment, and, on the basis of this, the necessary response of the education system to train for that employment. Again, the aggregations and approximations used in the model made it minimally useful for practical planning or policy use.

Puntasen (1973) used data on university graduates working in five major fields in Thailand to estimate demand and supply for new graduates in these fields. He thus escaped excessive aggregation of educational fields. (As previously noted, when fields of study are merged the results are minimally useful for educational and manpower planning.) Puntasen, in steps similar to Thias and Carnoy, first calculated IROR's. He then set demand functions which derived employment of new graduates as a function of wages and sectoral GDP. He estimated how rates of return would change as a function of changes in wages. Through wages he could then relate the number of new graduates who would be needed to attain selected rates of return. The results were limited in their general applicability to policy analysis, even in Thailand, but they shed important light on general issues in planning. Puntasen's results suggested that the conventional rate-of-return approach did not afford a sound basis for educational planning, and that the manpower requirements approach seemed slightly better than rate-of-return, but the ideal model and methodology would combine the two approaches. These general conclusions, however, are based on one situation and one set of data.

Freeman (1975), applying his model to project the supply and demand for new graduates in the fields of engineering and business administration in Venezuela, takes a different approach from the three previous studies. He centers his model on manpower requirements, rather than on rate of return. The name of Freeman's approach is descriptive. He calls it the MAM (Manpower Adjustments Model). Basically, he adjusts manpower requirements forecasts by taking into account the effects of changes in demand and supply. He derives a wage index for occupations, which, along with other information, enables him to adjust enrollments entering the occupation. He proposes using a large amount of education and economic information to adjust the conventional supply forecasts. He models changes in demand as a function of changes in wages, technical coefficients, and other forces. He models the changes in supply in a given occupation as a function of wages, supply forecasts, and other policies and programs which affect enrollments such as scholarships and subsidies. He estimates a rate-of-change-in-wages index based on demand and supply. He can then use his index to rank supply options and to manipulate policies and allocations in order to change educational supply.

The Manpower Adjustments Model (MAM) and the other models represent a planning approach which incorporates rate-of-return and manpower requirements approaches. These new approaches attempt

both the optimization of educational investments and the projection of labor required for specified output targets. All the models reviewed in this section represent a sort of synthesis which attempts to overcome some of the limitations of conventional approaches. Dougherty, Thias, and Carnoy and (possibly) Puntasen saw their task as improving the conventional rate-of-return analysis for prediction and planning uses, whereas Freeman and associates, working in Venezuela, were more interested in the improvement of manpower requirements forecasts. Their work suggests an alternative whose value depends basically on the existence of wage-employment relationships and a reasonable degree of play of market forces.

The synthetic approaches and the use of comprehensive models incorporating rate-of-return and manpower requirements planning mark the furthest point in the development and application of rational models to guide educational planning. As development and research activities, the approaches reviewed in this section have contributed to general knowledge, but there are both theoretical and practical limitations on their application to planning.

Chief among the theoretical limitations is the fact that the models still do not incorporate those cultural, psychic, social, and political influences on future education and manpower developments which are lumped under the mysterious rubric, "social demand". Chief among the practical limitations is that the models assume away important elements of reality. In application, the procedures aggregate and average, and use single coefficients and indices applied to the entire economy and workforce The newer approaches raise, address, and sometimes cast light on important issues in the economics of education, in education and development, and in educational planning Currently, however, in the practice of planning, the rate-of-return, manpower requirements, and social demand approaches to planning are not easily joined in one synthesis, using one comprehensive model In forecasting demand for education, manpower requirements forecasts are still run separately, though these are often modified by rate-of-return results in general terms, and shaped by micro-level applications of cost-benefit analysis In the forecasts of supply, rate-of-return studies are used as a supplement, as are labor market surveys on earnings and mobility, and a variety of data on educational policies and programs (scholarships, incentives, and admissions policies). These richer date are used to modify purely historical, trend-based projections of enrollment flows. The all-purpose model to cover educational planning from all relevant points of view has not yet been developed

FOREWORD TO CHAPTERS 6 AND 7

Comprehensive Planning:

Comprehensive Planning for Education Reform: A Case Study of Chile 1965-1970

NOEL McGINN AND ERNESTO SCHIEFELBEIN

Comprehensive Planning Models: A Commentary on Policy and Program Issues

RUSSELL G. DAVIS

The two chapters which follow will deal with the issue of comprehensive planning by first presenting a case in which a system-wide education reform was, in part, supported by a comprehensive planning model. Following the case is a commentary on how the comprehensive, or systems, planning model can be used to raise and resolve policy issues in national education systems. The order of chapters should suggest to the reader that planning models and planning techniques are only a small part of educational planning in the context of system-wide reform. This point is precisely what the chapters attempt to demonstrate. The comprehensive planning model was only one small feature of the technical task of planning in the Chilean education reform. Systems planning itself was only a part of the task of educational planning, and educational planning was, in turn, only one feature of the general reform. In one sense, educational reform was just one vehicle out of many for pursuing more general social reform in Chile. The case opens by describing the political context in which politicians and educators operate. It shows that the planner serves by providing the politician with information on what can be done. Planning information can contribute to an understanding of the power structure, the forces and the interests which contend and influence the outcomes of proposals for educational and social change.

In the Chile case, the projections in the model were used to show that implementing a policy of social promotion would not swamp the facilities and resources of the school system. In addition, the projections in the model showed that heavy flows of enrollments would be coming

through the secondary level, and that the importance of this level would not decline because of early emphasis on primary schooling; lastly, the resource projections of the model showed that teacher salary increments could be given, and the future education budget would still fall within reasonable resource limits. What the case does not tell us, because a case describes events not methods, is that the model enabled the planners to project developments in the entire system into the future and to view the future system comprehensively. The future status of many related variables, and the multiple and linked goals of education as a social system, were portrayed simultaneously. This is what makes comprehensive models useful for planners.

The commentary after the case will show that the three uses of the model, and other uses that were not discussed in the case, were very important issues for both policy and program. If the model had only this much to contribute in the Chilean reform, the reader may wonder why comprehensive planning models and systems analysis are raised as important issues at all. Comprehensive models and systems analysis are discussed, because this is a set of volumes which deal with issues of educational planning. The use of models is an issue in planning. Do the models help? Do the models hurt? How do the models help or hurt planning? What are the costs in time and trouble of developing such models? Are the models worth the effort? These are simple questions for which we have no simple answers We will give all the evidence we have, and the reader must judge

We are using the Chilean case and the commentary to teach these things about comprehensive models and systems analysis:

— Models and systems techniques are not the most important feature of educational planning, especially when educational planning is being used to support broad educational reforms. It is the play of broad political and social forces and the social dynamics within the major participating organizations which should absorb most of the planner's attention and energies.

— Models and systems techniques can contribute substantially to planning in any context, including educational system reform. The contributions are not merely technical and aesthetic; they are relevant to important social and political issues. Comprehensive models can be used to raise general social issues as well as policy and program issues within education

— Models and systems techinques can provide information which helps in understanding and some times in resolving not only general social issues but also policy and program issues

Neither the case nor the commentary makes any pretense of explaining the technical features of systems analysis or mathematical programming. This is deferred to the first three chapters of the second volume, a choice deliberate and pedagogically based. The point is that

it is possible to understand the use, *and misuse*, of systems analysis and programming models without going into all the technical features of the model. Except for a few planning specialists or technicians who will design and apply planning models — and the numbers are small indeed even among planners — most planners and policy makers are interested in how the models can be used. The issue is not one of *no* models at all. Some simple models are always used. The major question is whether it is worth all the trouble and expense of developing comprehensive models. Chapter 6 does not answer that question directly. It cannot. To answer it for the reader would require a full treatment of all the trouble and expense involved in developing and applying the model. That treatment can only be offered in a specialized and technical volume, such as that by Schiefelbein and Davis (1974), who give a complete presentation of the Chilean comprehensive model, including the advantages and disadvantages of the model. This is not attempted here.

CHAPTER 6

Comprehensive Planning for Educational Reform: A Case Study of Chile 1965-70

NOEL MCGINN AND ERNESTO SCHIEFELBEIN

1.0 *Introduction*

The politician in a pluralist state, faced with fragmented power and divided authority, begins by asking "What *can* be done?" Only after the possible action alternatives are defined does he ask, "What is to be done?" or "What do we *want* to do?" He answers his first question with information about the current reality, and his second with an inspection of his values and objectives. Information cannot tell us what we should want to do. For that we must rely on previously formulated values. But information can indicate what it might be possible to achieve.

Because the politician must at some point rely on information, the planner can play a critical role in the process of change. As a technician, expert in the collection and display of information, and as one trained in social analysis, the planner can help others to relate their values to feasible action. Planning, as a means for organizational guidance, makes sense when it speaks to those who have authority and power. Recommendations to the politician, to the administrator, to the decision maker, must therefore be presented in terms of variables inportant to those actors. The planner's rational analysis must include as essential information the political gains and costs of alternative policies and operational strategies.

This is true in education as in any other social organization. Because education is so important to the development of society, many groups attempt to shape educational systems so as to satisfy their own interests. Over time, skillful administrators (read "politicians") are able to work out complicated compromises among the more powerful groups who have a stake in education. The system enjoys stability so long as it is possible to continue to satisfy those interests.

1.1 *Resistance to Change*

Proposals for change threaten the stability of interests and conse-

quently engender resistance. Those proposing educational reform cannot rely on rational arguments to secure acceptance of proposed changes. To gain enough adherents to be approved and implemented — both within a Ministry of Education and in the larger society — a reform must develop a political power base sufficient to overcome the forces of resistance. No change is possible without strong support from the top positions in the national political hierarchy. But even with that support, reforms sometimes fail to get off the planning board. Unless the reform mobilizes support from those inside and outside the Ministry who participate in its realization and supervision, change may occur only in the top layers of the bureaucracy and leave the rest of the old system intact.

This process of mobilization requires information, and that is how planning can be organized to contribute to educational reform. Planning must contribute to an understanding of the power structure in which education operates. It may help to identify the interests of various groups, and it may also help to generate innovations that meet the interests of enough groups to insure that change will be supported. Because planners have no privileged knowledge of the future, they cannot, through application of their technical skills, identify the optimal solution. They can, however, use technical and other skills to generate an environment of confidence in the ability of the proposed reform to satisfy interests of participating groups. To contribute to a successful reform, therefore, planning must go beyond the analysis of technical data with respect to education, and beyond a strict deterministic or mechanistic view of the educational system. The planner sees himself as one of several actors in the complex drama that is the pluralist state.

1.2 *Content of This Case*

This case illustrates themes based on the experience of one successful attempt to carry out an educational reform. This reform was successful in that many of its immediate objectives were reached. It did result in a radical restructuring of the educational system. The reform may have failed, or have been frustrated in more ultimate objectives of contributing to the radical restructuring of society, but the educational planner cannot be faulted for that.[1] Most significantly, this reform was accomplished in a parliamentary democracy in which the governing party did not control the Legislature and could not rely on the military. It is a case where educational planning necessarily included attention to the political process in the generation of change.

2.0 *Background of Educational Reform in Chile*

Educational reform in Chile was carried out between 1965 and 1970. During that period, some of the principal activities included:

1. For a critique of the noneducational effects of the Reform, see Carlos Calvo, et al., *Educational Reform and Political and Economic Change in Chile: 1964 to 1970*. Washington, D.C.: World Bank, Staff Working Paper, June 1976.

- an extension of compulsory education, in fact as well as by law, from 6 to 8 years of schooling;
- total revision of all subjects in the primary school curriculum;
- revision of secondary-school curriculum, including the elimination of a class-based separation between vocational and academic tracks;
- expansion of enrollments at both levels to accept all applicants;
- creation and operation of a national educational television station;
- programs of adult education based on concepts of community development and upgrading of workers;
- initital progress in integrated planning of university development.

A considerable amount was accomplished in relatively little time.

2.1 *The Context for Educational Change in Chile*

Presidential voting was held in September 1964, after a long, active, and sometimes violent election compaign. Public interest in the elections was high, and a greater proportion (91%) of the electorate went to the polls than ever before. Because the conservative parties had not been able to agree upon an attractive candidate, the election was a two-way race between the leader of the center-left Christian Democrats and the "Popular Front" coalition of the Socialists, Communists, and the anticlerical Radicals. With no conservative candidate, the Christian Democrats did not have to make campaign overtures to the right, and the campaign turned on issues of whether the "revolution" needed by Chile should or should not be based on class struggle. The Christian Democrats promised a "revolution in liberty" while Popular Front rhetoric (and CIA-supported subterfuge) raised specters of armed conflict.

The Christian Democrats won the presidential election easily, with more than 56% of the popular vote. This was the first time in the memory of many people that a president had won with an absolute majority. Many people concluded that the Christian Democrats would enjoy undisputed power. One Party chieftain rejoiced, "We'll be in power for 20 years."

2.1.1 *The Party's Weak Position*

The jubilation was short-lived. The Christian Democrats did not have a majority in the Legislature; in fact the Party held only 4 of the 45 seats in the Senate, and 23 of 147 positions in the House of Deputies. Congressional elections would not be held until March 1965, at which time half of the senators, at most, could be replaced. Despite deep and bitter ideological differences, the conservative and Popular Front camps met soon after the elections to plan how they could frustrate, as much as possible, the "revolution" promised by the Christian

Democrats. Looking back in history, it is clear that this was to be one more minority government in Chile's history.

The Party's minority position in the Legislature is explained by their short history. Christian Democrats participated in national politics for the first time in 1952 (when candidate Eduardo Frei received less than 5% of the votes). Most of their supporters were young, and most of the leadership was politically unseasoned, except for a long history of struggle in the nation's universities and secondary schools, where the Christian Democrats had won power several years previously. The Party drew its strength from women, a skilled working class, small landholders, and members of rural cooperatives, and an increasing number of secondary school and university graduates with technical training.

Its ideological roots were in the social gospels of the Catholic Church, which argued for a fundamental structural change in society, as well as for a democratic process marked by respect for rights. The Christian Democratic party held that a major obstacle to development was the resistance of vested interest groups, and political parties that built their futures on the failures of others. The presidential campaign had commented on the cultural and social fragmentation of the country and on the lack of unifying values and ambitions. President-elect Frei called for a crusade by all citizens to build a new order based on solidarity and social justice. This would be a participative process, he said, in which all citizens would contribute to forming the new Chilean man.

2.1.2 *Importance Given to Education*

Education was to play a critical role, Frei announced in his inaugural address. The extension of educational opportunity to all — "democratization" of education, he called it — was necessary to achieve increased agricultural and industrial productivity, as well as to build patterns of popular participation in political decision making, and to encourage a more favorable distribution of income. Education was the single most important investment the nation could make, because it was an investment in its own people. A new education, based on authentic national needs and values, would enable people to master changes in their rapidly changing environment, using the power of science and technology to make a better life for all.

Several days after his inauguration, Frei announced that there would be a major educational reform. No details were provided about the reform, other than to restate the need for rapid expansion of educational opportunities at all levels, and the revamping of curriculum to bring it into line with modern science.

As his Minister of Education, President Frei appointed Juan Gomez Millas, a former Rector of the University of Chile. Trained as a historian, Gomez was judged to be an administrator capable of getting

things done. A charismatic speaker, he enjoyed excellent relationships with educators and other professionals interested in education. He was not a member of the Christian Democratic party. President Frei promised Minister Gomez he would have complete support, including whatever fiscal resources were required.

2.2 *Previous Efforts at Education Reform*

Education in Chile had a history of experiments in new educational structures and curriculum, that included: (1) a plan, begun in the 1940's for consolidated schools (a nine-year institution combining academic and technical subjects); (2) the experimental academic secondaries, begun in the 1950's, that introduced an elective curriculum and active teaching methods; and (3) the development of a special program in Arica, in the northern part of Chile, that attempted to integrate all levels of education and actively reduce dropouts.

The efforts at reform, going back to the 1920's, reflected the rich intellectual history of Chile, as well as the profound problems facing education. Each of the experimental programs had the backing of prestigious persons within the intellectual community, and none of them had any appreciable impact on the great inert mass of the educational system. In fact, in 1964 the catalogue of educational deficiencies in Chile was almost as extensive as that from 1944. In 1964, the major problems could be listed as follows:

- not all children were enrolled in school, although the Constitution required school attendance.
- Less than half of those who did enroll never finished the 6th grade.
- The education provided was thought to be low quality, ill-suited to training people for productive roles in a society seeking to escape the double bind of chronically low rates of economic growth and chronically high rates of inflation.
- Educational opportunity was highly associated with social class, and biased in favor of those living in urban areas, particularly the capital city.

None of these classic problems had been resolved by previous efforts at educational reform.

2.2.1 *Prior Planning Had Failed*

Little had resulted from efforts of the Integral Education Planning Commission created by degree by President Alessandri in 1962, but this was not for want of energy. The Commission, headed by a dedicated educator, Oscar Vera, had worked long and hard to do a thorough analysis of the needs for educational reform in Chile. In addition to a description of the system's failure to provide education to all,

the Commission's report described the changes that would have to occur in the administrative apparatus of the system. Vera's group proposed creation of a nine-year basic education cycle, in which all children would be enrolled in changed programs in academic and vocational high school, and creation of short degree programs at the higher educational level. The plans were based on two-and-a-half years of work by 140-150 persons, as well as that of foreign experts provided by USAID, UNESCO, and the Ford Foundation.

But presentation of the Commission's recommendations, including the creation of an Educational Planning Office, provoked considerable controversy. During the formal hearings in the Legistature on the Commission's proposal for a law creating an Educational Planning Office, representatives of parents, trade unions, teachers' unions, universities, private schools, student federations, all protested that they had not been consulted during the planning process. The Commission's proposal for legislation died in committee in early 1964.

3.0 *Preparing for a New Educational Reform*

Minister Gomez decided early that the Educational Reform could not be carried out by following the strategy used by the former Educational Planning Commission. He recalled that the Commission had tended to ignore the political basis for educational decision-making, and had acted as though only educators and a few university-based intellectuals had vital interests in the educational enterprise. In the political arena, the Christian Democrats faced the "unholy alliance" of Marxists and reactionaries, formed soon after the inauguration, that was searching for ways to embarrass the new government. Within the Ministry, Gomez soon found, most of the bureaucrats had tenure and were loyal to the parties, now in the Opposition, that had given them their positions.

But he had to act, and quickly. President Frei had already announced there would be a reform. He expected Gomez to give him some action that he could use to show that the party intended to carry out its promises.

The action was an announcement in mid-December 1964, given front-page attention in all newspapers, that beginning with the new school year in March 1965, *all* children who wished to enroll in school would find space. For the first time in the history of Chile, the Minister, proclaimed, no child would be turned away because of lack of space or teachers. At the time this announcement was made, only 89% of the age group was enrolled in primary school, and there seemed to be no excess of teachers or classrooms. Something had to be done soon to make good on the Minister's promise.

3.1 *The Organization of the Planning Office*

Gomez Millas turned for help to the team of technicians who had

worked with him while he was Rector of the University of Chile. This small group of young economists and accountants had planned the strategy that succeeded in consolidating power in the Office of the Rector, breaking the stranglehold that autonomous and isolated faculties had held for years. As Director of his Educational Planning Office, Gomez named Ernesto Schiefelbein, an economist with no experience in educational bureaucracy and not a member of the Party. The Minister located the office under the Superintendency of Education, the same office in which Oscar Vera had worked. The Superintendent was one of the few appointments the Minister could make without approval of the Legislature.[2] Legal authority for a Planning Office was assumed to flow from the Presidential Decree (unrevoked) that had created the 1962 Educational Planning Commission. The Minister felt he could use the Commission decree as an umbrella under which he could hire people (on a non-tenure basis) without having to go through the usual legislative channels for approval. The Educational Planning Office would report directly to the Minister and his Sub-Secretary, Patricio Rojas.

In addition to the few full-time professionals he brought with him from outside the Ministry, Schiefelbein hired some people as special consultants, obtained others on loan from other departments in the Ministry, or from the universities, and stirred up enough enthusiasm to attract a number of volunteers who would work for short periods. Recruitment and selection were accomplished by asking the directors of the operating divisions of the Ministry, their staff, and leading professors in the pedagogical and normal schools, to nominate people who could contribute. Some members of the defunct Educational Planning Commission were included in the group, as were persons drawn from all the major political parties in the country.

3.2 *Gaining Control over the Bureaucracy*

The successful experience of putting together the staff for the Educational Planning Office provided the guidelines for later recruitment of staff for the operating divisions, Primary, Secondary, etc. New positions could not be added without legislation, and the chances of success there seemed slight. Some people could be hired onto the Minister's personal staff but, in general, salary schedules in the Ministry were lower than professionals were paid outside, and it would be difficult to attract competent people. Some people could be hired using research or service contracts from external agencies, as, for example, from UNESCO, which provided higher salary rates than the Ministry was alowed to pay to permanent employees.

In total, however, the number of people that could be hired through these devices was small compared to the needs, given the size of the

2. The Minister had the power to transfer the Directors of the major departments (Primary, Secondary, etc.) and replace them with his own people, but a long-standing tradition defined these positions as "professionall" and therefore, not subject to the "spoils" rule.

reform envisioned and the kind of change strategy adopted. The decision to work around the Legislature meant adding on activities, rather than replacing them, and this required more new hands. Furthermore, it was assumed that many of the functionaries in the Ministry did not have the requisite knowledge to carry out the kind of reform that was contemplated.

3.2.1 *Use of the Capital Budget*

One mechanism hit upon was to use funds from the capital budget to hire personnel for the short-run effort to get the Reform started. Large sums of development capital had been set aside for education by the Christian Democratic administration. The Ministry convened a small unofficial group of persons "of confidence," to control its disbursement. This meant there were few restrictions on the use of the funds, and that it was relatively easy to hire on new persons as needed, as advisors or consultants (the Chilean term was "tecnicos") who served as a shadow staff for the directors of the operating divisions. Although these advisors had no legal position in the table of organization and no formal authority, they did have the confidence of the Minister. As a result, they could help a cooperative director get funds and authority or hold back funds from those directors who did not cooperate with directions from above. Some of the advisors were too political, and others tried to get permanent positions in the Ministry, but in general this control device worked well during the early stages of the reform. Later on, the incentive of early retirement was used to remove many of the directors and other staff who were not cooperative.

Much of the capital development money came through a large ($26 million) sector loan from USAID. This was the first experience for USAID with an education loan not tied to a specific project, and evaluation and control precedures were not clearly worked out. The Chileans accepted the money and began to use it before USAID overseers could get into place. The Ministry of Education insisted on approving all the technical advisors to be sent under the loan. This took considerable time. When the advisors finally arrived, the USAID technical advisors to the Educational Planning Office were assigned a research project and encouraged to go off on their own. They were not invited to planning meetings or otherwise allowed to participate in the design of the reform process.

3.2.2. *Legitimation of Decisions*

The practically defunct National Education Council was resuscitated with the idea that it could serve as a legitimating device for reform decisions. The council was chaired by Minister Gomez, and included representatives of universities, teachers' unions, private education, parents' associations, and business groups — 26 members

in all. The Council could advise the Minister on educational policy, curriculum, planning, teacher training, finances, research and legislation, but the Minister was not obliged to follow its advice. Prior to 1965 the Council had met only sporadically and symbolically. The Minister created a special Liaison Committee to link the Council with the work of the various working committees to be established for the Reform, and named the Director of Planning as the chairman of this Liaison Committee. All curricular reforms were to pass through the Liaison Committee to the Council for approval.

3.3 *The First Work of the Planning Office*

The first hectic weeks of the Educational Planning Office were spent reviewing all the proposals for reform that had been developed over the years. The planners noted the groups who had supported previous proposals.The likelihood was assessed that each proposal would require even more changes in the system further down the line. The Minister and his planning staff had decided, soon after creating the office, that there was not enough time to come up with *new* ideas for change. They hoped that among the existing proposals for change would be found those that could both gain approval from sufficient number of interest groups and at the same time induce changes in the entire educational system.

4.0 *The Nature of the Reform Process*

In the following sections we will review the history of five of the kinds of proposals for change backed by the Planning Office.

4.1 *Expansion of Enrollments*

In both his Inaugural Address and later speeches President Frei had called for the extension of educational opportunity to all in order to stimulate greater agricultural and industrial productivity and to build patterns of popular participation that would lead to national unification. These goals were supported not only by the Christian Democrats but also by the Socialist, Communist, and Radical parties.

It was clear that educational opportunity meant more than just entrance into school, but the planners gave priority to rapid expansion of enrollments for two reasons. Most obvious was the desire to provide schooling to all children as a basic social right. A second motive was to create disequilibria in the system that would enhance the successful introduction of innovations in structure and curriculum. The planners decided early in 1965 that *the main dynamic of the reform would be flow of students through the system.* This had not been discussed publicly, but the small group who were making the critical decisions which guided the Reform believed that opening the doors of the schools

to all students would force the Ministry, and the system in general, to make a series of adjustments that would lead to further changes.

The new group of students coming into the system would bring cultural characteristics and attitudes unlike those of many of the present students. Their intellectual interests and abilities would be different. The greater number of students would require adjustments in class sizes, teacher behaviors, district organizational patterns, and ministerial procedures.

Planners believed, at first without data, that the major obstacle to enrollment was lack of space. They decided, before having the necessary data, that previous governments had not built sufficient numbers of new classrooms to absorb increases in enrollments. They therefore, turned their attention to the factors affecting construction of schools.

4.1.1 *The Situation in School Planning*

Prior to 1965, schools in Chile were built either by the Ministry of Public Works or by the School Construction Society. Public Works schools were large and elaborate and built to last. In part because of cost, in part because of the procedures followed by Public Works, several years would elapse between the time the Ministry of Education would decide it needed a building and Public Works would complete it. An analysis of where Public Works schools were built showed that most ended up in wealthy neighborhoods, and most were secondary (rather than primary) schools.

The School Construction Society was a public stock company in which the Ministry of Education controlled 90% of the shares. The directors of the Society were top officials in the Ministry. Prior to 1965, the Society had done its planning at the state level, preparing straight-line projections showing the square meters of construction needed as a function of population growth. They also developed building plans. The Society did not plan for site acquisition nor begin site studies until a specific request had been received for school construction, usually from a legislator. Funds for site acquisition usually had to be obtained through an extraordinary request to the Treasury. According to an architect in the Society.

> What happens is that a politician seeking to make a hit with his voters takes the Minister out to lunch or dinner, and explains what he needs. The Minister than passes the request on to the School Construction Society. We have lots of academic secondary schools because the middle and upper class children who go there are better represented in politics than primary school children in low-income neighborhoods. (Interview, July 1973)

In effect, because the School Construction Society saw its role as responding to requests, it had not collected and analyzed the informa-

tion that would allow it to intervene in the process of deciding whether a school was really needed, where it should be located, and what its characteristics should be.

The planners did not have time to do a full-blown school census that would give them good data on where children were and how many were attending school. Nor could they wait for Treasury to appropriate money for site acquisition. On the other hand, they did not want local politicians to be able to determine where schools would be built.

4.1.2 *Mobilization*

The planners decided to take advantage of the opportunity created by Gomez' peremptory announcement of open enrollments. They launched a national campaign to motivate parents to enroll their children in school. Press agents were hired to broadcast the message through the radio, newspapers, announcements from the pulpit, wall posters, and speeches by leading Christian Democratic politicians, including the President. The planners has three immediate objectives: first, assess the over-all volume of demand for new spaces by urging parents to preregister their children; second, identify areas of the country most in need of space; and, finally, secure donations of sites from interested (and patriotic) citizens. Coverage in the nation's leading (and conservative) newspaper was thorough, thanks to a personal relationship between the Minister and the publisher. Even the Communist newspaper gave the campaign full coverage. A team of 40 volunteer students of architecture, engineering, and economics from various universities (most of whom were members of the Christian Democratic youth wing) spread over the country, visiting each and every school to obtain more complete information on space utilization.

By the end of January 1965 the planners felt that they had the information to begin assignment of children to schools for the coming year. They had found that many schools had unused space. Enrollment could be increased by about 20%, without additional schools, through double-shifting and use of space previously idle or occupied by offices or special purpose classes. Site donations were so many that for the first time in its history the School Construction Society found itself with more sites than it could build on. The planners brought architects and educators together to design a school that could meet technical requirements, that could be built by volunteer labor, with a lower construction cost, and that could be built in less time. Class sizes were expanded on the average from 37 to 43 students. This increase was perhaps too small to be noticed at the school level, but it did make a big difference in national totals. New schools were built with more classrooms, which reduced the costs of site preparation.

Given the inability of public construction groups to respond to the demand, the Ministry stimulated the formation of several private school construction firms. Credit was extended to entrepreneurs who could

produce prefabricated schools according to Ministry designs. In addition, the Armed Forces were asked to use their construction battalions to assist in putting up schools. The government housing agency provided a site in each of these developments (which were many, because the Christian Democrats had promised to alleviate the problem of inadequate housing for low-income groups). The whole nation seemed to have thrown itself into the task of school construction. Indeed, daily newspaper reports about the square meters of construction completed read like bulletins from a battlefront.

4.1.3 *Results*

When schools opened in March 1965, all children were accommodated. Given public attention to the construction of schools, and the expansion of construction, little pressure was received from the Legislature, at least during the first two years. (It is true, however, that many schools seemed to be needed in areas where Christian Democrats had the greatest likelihood of winning elections, areas that had not received attention under previous governments, and which were not dominated by the Popular Front parties).

Demands on the Ministry to have schools built where it would win votes for this senator or that deputy, already campaigning for reelection in 1969, began to increase near the end of 1966. The Ministry even had difficulty with Christian Democratic legislators, as Party discipline was beginning to flag. At the end of 1966, a presidential decree gave the School Construction Society sole responsibility for school construction, eliminating the Ministry of Public Works. Simultaneously, the Ministry formed a School Construction Technical Committee, made up of members of the Planning Office and the Construction Society. The decree authorized this committee to develop a master plan that would indicate, year-by-year, the total number of schools to be built, the towns or locales in which they should be located, and alternative sites (where possible). Requests from legislators to the Minister or President now went to the Technical Committee, which could use its considerable bank of data on local needs to justify the denial of unreasonable demands. The actions of the Technical Committee were described in the press, in an attempt to encourage both local participation in construction, as well as to reduce the possibility of "public deals."

4.2 *Automatic Promotion*

The collection of data on school enrollments had a major unintended consequence. The planners discovered that, contrary to conventional wisdom, almost every child *did* enroll in school at some time in his or her life. Previous statistics had been misleading because children were eliminated from school before the fourth grade. For example,

only 70% of the children enrolled went from the first to the second grade. The planners' data demonstrated also that most students did not drop out of school through free choice or lack of interest but because they were failed by teachers and forced to repeat the early grades of primary. In fact, true drop out rates in Chilean primary grades were negligible, while repeater rates were high.[3]

Additional research conducted by the planners indicated that school failure was more common among working-class children and those living in rural areas. This finding was not interpreted as a deficiency in the culture of the children's families. It was viewed as resulting from a lack of financial means and from the imposition of inappropriate academic criteria by teachers. The planners spent considerable time visiting and evaluating a pilot project, instituted by the previous government, which had experimented with ability grouping of children. The evidence from that experiment indicated that teachers *could* handle more heterogenous classrooms and that bright children did not lose when they were placed in heterogenous groups.

The planners decided to recommend a policy of automatic promotion through the first six grades, to begin in the 1965 academic year. The issue was discussed with Secretary Rojas, but not the Minister. Rojas' major concern was whether the system could afford to keep those children who were now being washed out of the early grades. He asked, "How many teachers will we have to add to the payroll? What additional inputs will be needed to maintain the present level of quality?"

4.3 *Use of the Comprehensive Planning Model*

The planners now made the first major use of the computerized linear programming model of the educational system that had been in process of development since November 1964. The model was not complete, however, and planners had to consult with a number of teachers and other experts to set some of the estimated values of the variables in the model. But the model did show how the increased enrollments from automatic promotion would affect the demand for teachers, classrooms, and other physical resources, and ultimately, affect the costs of running the system.

The results of the model were counter-intuitive, in that they demonstrated that a policy of automatic promotion would lead to *lower* enrollments. This was true because, although over time more children would enter school and reach higher levels in the system, at any given time fewer children would be occupying seats in schools. (Increasing the numbers of students retained in the system and promoted through the grades will over time actually reduce the enrollment burden on the system, but this fact is not easy to grasp. In Table 7.1 in the next chapter, the data from a model applied in another country are used to

3. The same has been demonstrated to be true in most Latin American countries. See Ernesto Schiefelbein, "Repeating: An Overlooked Problem of Latin American Education," *Comparative Education Review*, 19 3 (October 1975): 468 481

demonstrate this fact.) The planners, using the computer's output to convince the Sub-Secretary, argued that automatic promotion would make it possible to enroll all children in the existing space in the system at no additional cost and with no additional teachers.

Sub-Secretary Rojas was persuaded, and was willing to make a formal proposal to Minister Gomez to be carried up to the National Educational Council. But at the same time considerable opposition to the idea of automatic promotion had developed among the professional educators, especially those in Primary Education. The Director of Primary Education, a member of the Radical party and an "elder statesman" in the teaching profession, threatened to fight over the issue. He argued that the policy would lower the quality of education provided. He also warned that automatic promotion would require higher salaries and reduce class sizes, as children with minimal levels of ability would be passed on from year to year, thus making the teacher's job more difficult The issue of automatic promotion was temporarily shelved as planners became occupied in analyzing teachers' salaries and considering whether an increment in salaries could be tied to a request for higher productivity

4.3.1 *Extension of Compulsory Education and the Planning Model*

The lengthening of compulsory education from six to nine years was another idea considered by the planners, and a legacy from the Educational Planning Commission. The use of the comprehensive model helped the Reform planners to decide that the system could not afford to enroll all children through nine years of education, but that it could afford eight years, in terms of available teachers, classrooms, and government revenues allocated to education. Several advantages were seen in the extension of compulsory education First, public financial support for education would now run for eight instead of six years, reducing social desparities Second, an eight-year Basic Education program (as it was called) would take two years away from the academic secondary schools and perhaps provide an opportunity to introduce curricular reforms into secondary education. Third, the Basic Education program would eliminate the connection between primary schools and academic secondary schools, common in the private system (and in public secondary schools in wealthy neighborhoods). Because of their relationship with a secondary school, these (so-called preparatory) schools typically had in their classrooms better trained teachers than most public primary schools Now all children would attend the same kind of primary or basic education program

The lengthened progam would require a new curriculum that would be self-contained instead of merely preparing some students to go on to secondary schools. A new curriculum would require retraining of teachers, which was seen as an opening to revise the secondary-level normal school system in which public school teachers were trained.

The creation of a basic education cycle was supported by every major group in Chilean society, even those that had not thought through the implications for the remaining structure of the educational system.

4.3.2 *Removal of Obstacles*

There were, however, some problems within the Ministry of Education to be resolved. The transfer of the sixth and eighth grades from control of the Directorate of Secondary Education to the Directorate of Primary (now Basic) Education meant some loss of power for the Director of Secondary, and for the secondary school principals. The affected teachers were likely to lose some status and perhaps salary — primary teachers were paid considerably less than secondary teachers.

In fact, many principals were glad to get rid of the troublesome primary grades that had been attached to their secondary schools. The promise of the Ministry to appropriate funds to improve the academic secondaries may have helped to co-opt the Director of Secondary Education. Only 600 teachers were directly affected by the transfer of the two grades. About one-fourth accepted an early retirement; another fourth accepted administrative appointments (most as assistant principals in primary schools) that gave them equivalent salaries; and the remainder chose to stay in academic secondary schools. The Ministry created by presidential decree new support roles and trained teachers as librarians, audio-visual specialists, and guidance counselors.

The model projections demonstrated to the Directorate of Secondary Education that within two years large classes of students would be graduating from eighth grade. These numbers would be larger than before, and secondary education would increase rapidly in importance. This problem could be met by recruiting 2000 unemployed academic secondary school graduates who had been denied admission to the university. These students were given an intensive two-month training course and apprenticeship under a master teacher.

4.4 *Curriculum Reform*

Meanwhile, by late 1965, the National Educational Council, through the Liaison Committee, was considering reforms in the curriculum for the new Basic Education program. In a few short months a Curriculum Committee, organized by the Planning Office, had produced recommendations for a new plan of studies for the eight years of Basic Education, and syllabi for the first and seventh grades. The original Committee began its work in January 1965 with a discussion of the educational philosophy that would be used in the development of the curriculum. Agreement on the basic philosophical ideas came more easily than had been expected. None of the Committee members had

an interest in the existing curriculum because of a textbook on the market. They agreed that time was too short to develop an optimal proposal. They would only attempt to lay out some basic ideas that could be developed later and lead to further change. The Curriculum Committee also was influenced by the planners. One member reported,

> I had thought the planners wanted everything well-planned and thought-out ahead of time. Instead the attitude they had was "don't be bashful". "Get something out, anything, so we can discuss improving it." So we escaped the quagmire of planning to perfection before beginning. Planning meant doing. (Interview, May 1973).

Although not all were members of the Christian Democratic party, none of the original Curriculum Committee members had strong allegiances to any other political group.

Once the basic ideas were laid out, however, membership on the Committee was expanded, as a series of task forces were created in each of the major curriculum areas: mathematics; national language and literature; social sciences; natural and biological sciences; and complementary activities. Each of the original members recruited teachers and professors of education to help in the development of curricula. The task force members were chosen on the basis of professional prestige and creativity. Some resistance was offered by Christian Democratic party officials to the nomination of a winner of the Lenin Prize to serve on one of the committees. The Planning Office insisted and won. Contact with th Directorate of Primary Education was high.

4.4.1 *Contact with Classroom Teachers*

Participants in the curriculum area task forces were encouraged to try out new materials and procedures as they were developed. To make this possible, the Planning Office solicited the collaboration of primary school principals. The curriculum people then worked directly with classroom teachers, from time to time bringing in groups of them to discuss ideas for new approaches in curriculum. The word quickly spread among teachers that the Ministry of Education was really interested in their ideas.

The planners were gradually learning what could reasonably be expected of teachers with a given level of training. Primary school teachers in 1965 averaged 11 years of schooling, most of which was in low-quality schools. Woefully unprepared for the creative demands of teaching, they slavishly followed the guide provided them by the Ministry. As this guide itself was limited to little more than a list of topics and themes to be covered in each unit, classroom teaching was thin. Most teachers placed great emphasis on rote memorization of

abstract and usually irrelevant material. In effect, they taught what they had been taught, using the same deadly methods.

The first proposal made by the planners was that teachers concentrate on basic principles in the various subjects, rather than asking students to memorize facts. This suggestion was rejected outright by the teachers. The planners began to understand that without providing them additional training and support, it was not reasonable to ask teachers to be creative. The planners saw that the best strategy would be to take advantage of the teachers' tendency to conformity and to give them a detailed curriculum guide that they could follow. The new guide would use new training techniques. But first it would be necessary to "unfreeze" the commitment to present teaching techniques.

To avoid the delays that would be occasioned by controversy, the planners decided to begin with only one subject area rather than the whole curriculum. In choosing the subject area, they used the following criteria:

> The subject had to be considered a fundamental part of the curriculum by teachers. It had to enjoy a certain amount of "prestige" so that success in this subject would influence teaching in other subjects.
>
> The methods used to teach this subject should have implications for all facets of the teaching role — that is, not be subject-specific.
>
> It should be possible to reformulate plans, programs, methods, and materials for the subject in a short period of time.

Mathematics seemed the best choice to the Committee. Math was a "prestigious" subject because of its traditionally high "difficulty" level. Much work had been done on Modern Math in other countries, and Chilean newspapers and magazines had begun to diffuse some of those developments. Math seemed relatively culture-free, so that technical advisors offered by the Ford Foundation, for example, could be used without provoking resistance from nationalist educators.

In addition, several members of the Committee had recently learned about the Cuisenaire rods, a set of colored sticks graduated in length from 1 to 10 centimeters. The rods were touted as useful for teaching a basic understanding of the four arithmetical operations of addition, subtraction, multiplication, and division. Use of the rods in the classroom would require teachers to work with small groups of students, to allow students to experiment on their own, and to almost completely abandon teaching mathematics in rote terms.

Once again the Ministry swung its press agents into action, this time to promote Cuisenaire rods, and modern mathematics. Sunday supplements, in both elite and the working-class newspapers, told parents how they could collaborate with teachers in helping their children to learn mathematics, through the use of the rods. When public demand

mounted, the Ministry was ready with stocks of the rods (produced in Chile) for sale at prices within the reach of all but the poorest families. Schools distributed the rods without charge to families unable to buy them. No direct pressure was put on teachers to use the rods in their classes, but the Ministry offered (through prominent announcements in newspapers, among other means,) to provide special courses in their use. Meanwhile, a subcommittee began work on the production of a national version of modern mathematics textbooks that used number-line concepts rather than rods.

4.5 *Other Developments*

A number of other curriculum decisions were being made at the same time. The National Educational Council, on the urging of its Liaison group, accepted the recommendation of an eight-year basic education cycle, the plan of studies, and the syllabi for the first and seventh grades. Presidential decrees in early December 1965 gave official sanction to programs being pretested in pilot schools. Some programs had been supervised by the Ministry; others resulted from the initiative of the principals. One decree described the structural changes noted above, authorized the Ministry to train secondary school graduates to become primary school teachers, and stated that the programs for the first and seventh grades would be tried experimentally in 1966, and in the other grades successively. Another decree indicated what was to become of secondary-school teachers then teaching in the seventh and eighth grades.

In the 1966 academic year, experimental versions of the first and seventh grade curricula were used in several hundred schools. All teachers using the new materials were provided with curriculum guides that provided detailed suggestions on how to teach the unit. About half the new teachers received some kind of short training program in the newly created Teacher Training Center. The Ministry began to put out a monthly *Educational Review*, which published official versions of the curriculum and articles on how to implement it. Several newspapers published Sunday supplements with additional suggestions for teachers and explanations for parents.

During 1966 the Curriculum Committee kept in close touch with teachers using the new curricula. Results were generally positive, and further cooperation from teachers seemed assured with the signing in October 1966 of the teachers' agreement on salaries. In December the President issued a decree creating the eighth grade. In March 1967 *all* schools began using the new first and seventh grade curricula. In 1967 experiences were again highly positive, and for the following year the Educational Council approved extending the new curricula to the first three primary grades in all schools. The seventh and eighth grade curricula continued in an experimental status.

In 1968 the decision was made to skip further experimentation and to

use the new curriculum for grades 1 through 8 in all schools. In four years, a new (and to some observers' eyes) fundamentally different curriculum had been implemented in all schools in the nation, without major conflict or resistance.

4.6 *Analysis of Experience*

Even the educators on the Curriculum Committee were impressed with how fast the process had gone. They felt that one critical aid was the use of a curriculum planning model developed by Ralph Tyler (with additional work by Benjamin Bloom). They confided privately that almost any model would have served the purpose of organizing their discussions and decisions, but this one enjoyed the benefit of being the "international rage" among educators in Chile. The following comments, taken from interviews with members of the Curriculum Committees, were offered to explain the rapidity with which the curriculum was developed and put into place:

What made the most difference was that we believed we could do it, that we could plan a curriculum and make a significant change in education. This had been coming for some time; the country was ready to do something really significant.

The Ministry's decision to open up the schools to everyone made a big difference. We were faced with a *fait accompli*. Those students were coming in and they had to be taught We had to work out something for the 7th grade. The teachers felt it too. Parents' groups were asking the Ministry to do something

At the time it seemed like chaos. Everyone was working at breakneck speed on his or her piece. Nobody had any idea of the whole program, except the Coordinator (the Director of the Educational Planning Office). All the groups had to write their ideas down on paper, and it all flowed through him. But if you needed anything — secretaries, materials, access to teachers or children — you got it right away.

There are some really outstanding people on the Committee's task force. Some of them have studied abroad and have a universal perspective. And it helps a lot that many of the task force people are good in committee work. The people in politics and the teachers' union are the best. They know how to organize a meeting and work out a compromise when necessary.

4.7 *Secondary Education*

The successes described above were all confined to basic education. Much more difficult was the task of generating a processs of change in secondary education. The planners wanted to create a program in which there would be few or no distinctions between students bound for the university, and other students who would end their education after secondary school. Opposition to the planners' arguments in favor of the combined program came from both conservatives and representatives of the Popular Front. The conservatives wanted to maintain a

classical, humanistic formation for those who would go on to the university, and a separate vocational track for those who would go directly into the labor force. The Popular Front also wanted a separate vocational-technical track that would send some students on to the State Technical University, where the Communist Party and its supporters had made significant gains and would shortly control the university.

The final compromise was to create a four-year middle school with humanistic-scientific, and professional-technical tracks. Students in both tracks would all study the same subjects the first year, while some programs were shared the second year. They could transfer between the tracks if their grades were good enough. Both tracks would allow a student to apply for admission to a university. The humanistic-scientific programs were to include some vocational courses. Examinations for admission to secondary schools were eliminated, although many of the elite secondaries, both private and public, continued to limit admissions.

5.0 *Salary Increases for Teachers*

Not all of the Ministry's dealings with teachers worked out so well. The case of the conflict over salaries demonstrates the need for planners to include political variables in their analyses and to go beyond the limited set of factors normally included in economic analysis.

Study of the salary schedules of teachers had been one of the first tasks of the Planning Office, during the first discussion held early in 1965. At that time, enough detail of the global strategy of the reform had been sketched out to make it clear that teachers would have a vital role to plan, but the planners did not yet know how much support and cooperation they could expect from teachers. The economists in the Planning Office anticipated serious resistance. One of them argued:

> Of course there will be resistance to the kinds of changes we are proposing. Teachers have been in the same traditional rut for years. They do what they know how to do, and we will be asking them to strike out in unknown territory. But unless we can get them to listen to what we are proposing, nothing can happen (Paraphrased from interview, May 1973).

The economists argued that a significant increase in pay would serve as a means to motivate teachers and convince them of the good faith of the Ministry. They were opposed by one or two other members of the planning team who felt that other incentives could be offered teachers. They suggested national prizes for good teaching, or similar "moral" incentives. The team discussed briefly how good teaching could be identified in the schools and how to keep politics out of the process. In late March 1965 the planners approached Sub-Secretary Rojas

and Minister Gomez to ask their opinions on the feasibility of a significant pay raise for teachers.

Gomez Millas responded that in principle he approved of such an action, although he would have to be shown that, in fact, teacher salaries were low. (At that point the planners did not know how teachers' salaries compared with salaries of other educated workers). Gomez stated that there had been no public signs of discontent among teachers with respect to salaries. "Perhaps," he said, "you are going to create a problem where none exists. But go ahead with your analysis and then we will discuss the proposal again."

Relevant data were collected by September 1965. The planners discovered that teachers' salaries had remained constant in real wage terms for ten years, even though per capita GNP (in constant dollars) had risen 8.25% between 1961 and 1963, and over-all wages and salaries had increased 28%. As a consequence, teachers were being paid less than other professionals with comparable education. It was also true that teachers worked a shorter year.

The planners spent several months interpreting and discussing these findings. Some felt that salary increases should be tied to increases in the "productivity" of teachers. For example, teachers could be asked to work more than the usual 36 hours per week, or to extend their nine-month year to ten or eleven months. Those planners with some experience in teaching argued against these proposals on the grounds that these traditional work schedules were not on the teachers' list of "negotiable" items.

In December 1965 the planners asked Treasury to tell them the amount of money that would be available to the Ministry of Education for the next five years. They then ran the Comprehensive Planning model, making assumptions about the amount of increases in pay that might be given to each of the various categories of teachers. *The model results demonstrated to policy makers that the educational system could affort to grant teachers an increment in real income (over and above inflationary increases) of 50% over the five-year period.*

Some time was spent discussing the advantages of a proposal offering increments over a five-year period. The teachers in the planning group felt that this long-term commitment by the Ministry to salary improvement would serve as a powerful incentive for experienced teachers to remain in the profession. The amount of the yearly increment would be about 7% in real income, a salary jump greater than any that teachers had ever been offered. After a study on the legal procedures necessary to effect such a policy, a formal recommendation was made to Sub-Secretary Rojas, and the Planning Office turned to other activities.

5.1 *Reaction to the Proposal*

The government chose to include the plan to increase teachers'

salaries with its general proposals for income redistribution among government employees. This redistribution would be accomplished by granting proportionately larger cost-of-living increases to those with lower salaries. A month later the Ministry of Education announced the creation of a special committee to solve problems of teachers. The Committee, an advisory group, included the sub-secretaries of Education and Treasury, the President of the National Federation of Teachers (NFT), and the presidents of the constituent unions of teachers.

As soon as negotiations were under way the teachers' unions seemed to realize they were in a strong bargaining position. The teachers' first move came on Sunday, June 5, 1966, with a public announcement that they would stop work on Tuesday in all districts where teachers had not received their pay. (Delays in paying salaries to public employees were notorious in Chile.) No mention was made of incremental salary raises; all complaints were directed toward the antiquated methods used by the Ministry of Education to process payrolls. The Ministry admitted that it was behind in payments, but that it was acquiring IBM equipment to speed up the process in the future.

Many teachers failed to show up for work on Tuesday, June 7. The following Monday the National Federation of Teachers announced plans for a two-day work stoppage that week if salaries for June were not paid by the 15th. The Federation also announced other demands, among them, permanent positions for all teachers with one-year contracts. The protest had originally begun over delays in payment of salaries to primary school teachers. Now, NFT demanded that teachers in adult evening schools also be paid immediately. On the 15th the NFT included another demand on its list, that the agreement to pay teachers 70 cents a day for lunch be honored.

By the 20th of June the NFT rejected the Ministry's recommendation for a 7% raise. The NFT position,which was supported by the parties in the Popular Front opposition, called for a separate salary schedule for the Ministry of Education, full-time positions for all teachers, an increase in salaries, and a system of salary incentives based on in-service training. By this time the negotiating committee had been meeting for almost two months. Its final recommendations, not made until late September 1966, were close to the original proposal made by the planners, that is, annual real wage raises in increments of about 7%. The NFT immediately made a counterproposal calling for increments of 15% per year for two years and called for a plebiscite among teachers

The plebiscite was held in October 1966 Primary school teachers voted 2-to-1 in favor of the NFT proposal, while secondary school teachers voted against it. About half the teachers in the nation — 6% of the total voting population — voted. The NFT called teachers out on strike until the government accepted their demands. The strike finally ended with a compromise worked out between the NFT and the Presi-

dent of the Christian Democratic party (not President Frei). In return for the teachers' going back to work, the Christian Democrats promised to propose legislation creating a schedule of salary improvements for the next four years. These increments, to be specified in the legislation, would be about 10% per year in terms of real wages. Other less important fringe benefits were also included.

It looked as though the government had come out of the negotiations fairly well. Although the 10% per year increments were larger than the 7% that the planners had thought could be afforded, they were much less than what the NFT had sought. The settlement was described publicly as the "teachers agreement," as if it were a binding contract that would insure teacher collaboration until 1970.

But that was not to be. In March 1968, just before the beginning of the school year, the teachers' unions again demanded salary increases from the government. The facts seemed to be that the government, faced with a reduced over all budget because of declining revenues from copper (subject to world market prices), was trying to squeeze the cost-of-living adjustments for public employees down considerably below the real increase in the cost-of-living. The NFT, demanding compliance with the letter of the law of the teachers' agreement, included a long list of other petitions, among them, abolition of all private schools and a congressional inquiry into the publishing of primary school texts "based on foreign documents which ignore our special character." This referred to the distribution of a basal reader published in Spain, using drawings depicting aspects of Spanish life. A protracted strike followed and again ended only after a compromise on economic issues.

5.2 *The Negative Social Effects of the Conflicts*

Neither of the two conflicts affected the process of planning the Educational Reform. Teachers continued to work with curriculum planning groups, to try out new materials, to accept new responsibilities, and in general to contribute to a fundamental redirection of education in Chile. But the additional financial burden of the increments in teachers' salaries reduced the funds available for other elements of the reform. As a result, there was a limitation on the scope of projects such as new textbooks, improved teacher training, and scholarships and nutritional programs for children from families with low incomes.

6.0 *University Planning*

If the dispute over teachers' salaries was a failure in which planning paid too little attention to political variables, the development of university planning is a different story. In this instance, political ac-

tion made it possible to make decisions using the richer base of information that technical planners can provide.

Prior to 1960, universities in Chile made annual budget requests to the Treasury based on a linear expansion of existing programs by an amount corresponding to the historical growth rate of the institution. Each university submitted its own proposal, without consultation with others. The proposals provided information on the total amount requested for each unit (faculty or school) of the university, and some sketchy information on the teaching and administrative payroll. Universities generally received what they requested except when the national budget was particularly restricted, in which case the requests would be granted proportional to the total amount specified.

In 1959 the InterAmerican Development Bank invited the University of Chile to submit a proposal for capital development. The amount the Bank was willing to lend was a considerable fraction of the annual budget of the University. Accompanying the invitation were detailed suggestions about the kind of information the Bank required in order to act favorably on the request Gomez Millas, then Rector of the University, used his team of economists and accountants, to generate data on the number of professors and their distribution by hours and students, on students by program, on the flow of students through the system, on the utilization of space in the University, and on the fit between graduates and manpower needs of the economy according to CORFO (the national development planning agency). The loan was made and the IDB promised more.

Rector Gomez then institutionalized his group of technicians by creating a budget office to prepare the next submission to the Treasury. Among the analyses done by the office was an estimation of the amount of money that Treasury could afford to grant the University, given national revenues Using data included in the IDB proposal, the University of Chile's budget request for 1961 asked for a real income incremental increase of 16% over the previous year This was three times the normal increment

The University's request was granted, largely because Treasury had no counter arguments In following years the University continued its practice, and with the same kind of success (although with less enthusiasm after Gomez Millas left the University in 1963). Other universities also developed budget offices and prepared proposals with cost data to accompany annual budget requests

Despite these developments, Minister Gomez Millas was preoccupied with the situation of the universities A critical element in the economic development strategy of the Frei government was the creation of Chilean-owned industries and the nationalization of large firms then held by foreign interests. For this to be possible, the country needed many more engineers and physical scientists. A CORFO study showed that plans for economic expansion would fail unless universities could rapidly increase the number of graduates in technological

and scientific fields. But Gomez's own experience suggested that this could not be accomplished simply by giving more money to university rectors. Because of the political structure of the universities, the rectors would find themselves pressured into expanding less rigorous programs, such as those in humanities and the social sciences.

Minister Gomez addressed this problem by seeking out long-time friends among deans in the University of Chile, especially those in Engineering and Medicine. He brought them together in informal meetings with a representative of the Treasury, where the Minister also was along-time friend, to discuss the general objectives of their faculties. From time to time he asked Ministry of Education planners to provide data describing the country's needs and the situation of the faculties. The planners were not involved in the meetings themselves. These informal, extra-official conversations resulted in grants from the Treasury to various faculties in the University, and a 10% to 15% incremental increase in real income. Similar arrangements were worked out in 1966, and in the case of one or two faculties the agreements covered a three-year period.

Encouraged by this experience, the Minister asked his planners to draft legislation to formalize the arrangements. The Ministry of Education already had legal authority to control the budgets of the universities, but no Minister had ever dared to exercise it. The new legislation would build on the spirit of cooperation the Minister had been cultivating. The planners proposed creating a University Planning Council that would have the power to evaluate the universities and to allocate the national investment in higher education.

Each of the university presidents found something in the proposal he did not like, but most resistance came from the University of Chile, which argued that it should be considered apart from the other seven universities in Chile. There was no formal, public opposition to the proposed legislation. Instead, the universities recommended change after minor change in successive drafts, dragging the process on for months.

The University Reform Movement finally began in 1966, first in the Catholic University of Valpariaso, then the Catholic University in Santiago, and only later in the other institutions. Attention shifted away from the counter proposal. Students and faculty members were demanding participation in the university governance, and tension in Chilean society was high. At the same time, government revenues were much below expectation because of declining copper prices. Looking ahead to the elections of rectors in 1968, political wisemen were predicting that at least three universities would choose men who belonged to political parties openly hostile to the government. Treasury was beginning to feel that investment in higher education was not such a good move at the moment.

Still, higher education seemed more than ever to need rational planning. Demand for entrance to the university was rising rapidly and

would accelerate once the effects of the reform worked their way through secondary education. Costs of higher education were rising too as better-trained professors demanded higher salaries, better equipment, and better facilities. Unless investment in higher education could be related to national productivity goals, the government could be accused of supporting elitist educational institutions.

The first break for the Educational Planning Office came in early 1967 through a request from CORFO. When several universities asked international agencies for capital development loans, these agencies asked CORFO to underwrite them. Fully occupied with economic development planning, CORFO turned to Educational Planning. The Director of Planning was a former CORFO analyst, and it seemed reasonable that the Ministry of Education be consulted. CORFO was delighted with the speed and thoroughness with which the educational planners completed the necessary studies on the loan requests. CORFO began to consult with the planning office on all university projects. In May 1967 when CORFO received several proposals from universities for large research projects, it again seemed natural to ask the Ministry planners for help in evaluation.

Information gathered by the Education Planning Office was supplemented with a task force study. The study began by requesting from Treasury all the budget requests by the universities for the past eight years. The task force also combed newspapers, magazines, and dissertations from the various universities. Only at the end of the process were the universities approached directly for information This was made possible in August 1967 when President Frei issued a decree creating a Coordinating Committee for the Planning of Higher Education. The substance of the decree was almost identical with the proposed, but never-passed, legislation drafted two years earlier by the planners. But the process behind it had differed in two important respects. First, the President had consulted privately with each of the university rectors before issuing the decree. Second, the creation of a committee was less threatening than a permanent Planning Council, because Committees have short lives and cannot control funds The decree authorized planners to request information directly from the universities.

Armed with this decree, the planners gained more information on the place of the universities in Chile's development The information was organized into a report designed to call public attention to the deficiencies of the universities in terms of national needs The report was published by the National Planning Society, a prestigious professional organization Rectors and planning officers of the eight universities, and other persons interested in higher education, were invited to attend a seminar sponsored by the Society to discuss the findings of the report

Attracted by the prestige of the sponsor of the seminar, and following the example of the University of Chile, all of the universities sent

their presidents or representatives to a meeting held in May 1968. Less than a week before the session, students in the University of Chile occupied several buildings and demanded massive curricular and administrative reform.

None of the participants in the seminar attacked the Ministry of Education for having dared to do an evaluative study of the universities. There was argument about the validity of some of the data, and criticisms of the interpretations offered, but the assertion that higher education should be planned remained untouched. Most of the university participants seemed overwhelmed by the amount of knowledge the Ministry of Education planners had about the universities.

Immediately after the May meeting the Treasury sent out the annual requests to the universities for the preparation of their budget proposals for the coming year. This time the request was accompanied by a new set of guidelines that had been developed by the Education Planning Office. Universities were instructed by Treasury to return the completed proposals to the Ministry of Education. The budget officers of several universities were given help by the Ministry planners. Most of these officers had little formal training and insufficient analytic skills to prepare the data requested The planners offered to help the universities obtain as large a budgetary allocation as was both possible and reasonable.

At the same time the planners asked Christian Democratic politicians to help them anticipate the kinds of questions that the Opposition might raise about the moves into university planning Using that guidance, the planners prepared background papers with 27 questions, and detailed answers, that were given to the Minister, party members, and friendly journalists

In September, when the budgets were due, four universities sent submissions directly to the Ministry of Education The others were sent to Treasury, which sent them to Education and advised the universities that all future dealings should be with Education Each budget was examined carefully, criticized, and then returned to the university with suggestions as to how it should be changed Some of the criticisms proposed that the university receive less money Others suggested the creation of new programs or the purchase of necessary equipment or the addition of new personnel to support existing programs

Opposition was muted In some cases universities went along because they believed that rivals had collaborated and been rewarded A few universities were, it seems, overwhelmed by the arguments of the planners One university choose to "fight it out" through public letters appearing in the press, but lost the debate The Ministry of Education planners listed these five reasons to account for the success of this first effort to assist university planning

— Some of the university presidents were Christian Democrats

— The University of Chile was in such chaos, it was possible to deal with member faculties one by one.

— The provincial universities did not form a coalition with the three universities in Santiago because they didn't trust them.
— The main themes of the student reform movement — modernization and rationalization — increased the legitimacy of the planners' arguments.
— The fact that government had been able to arrange (modest) budget increases for all the universities.

7.C *Conclusions*

The history of some aspects of the Educational Reform in Chile is useful if it serves to sensitize planners and others in the field of education and development to the importance of having political information to support the selection of alternatives for change. Information is the planners's single most important contribution to the process of planned change. Because decision-makers do not have the time to process all the data they receive, they rely on the technical expertise of others to gather, tabulate, and interpret that data. And the more "scientific" the procedures used in the analysis, the more credible will be the recommendations made. The planners used their models where models were of any use, and avoided technocratic analyses where it did not help.

The planners' contribution can be realized in many ways beside the manipulation of models and quantified data about technical aspects of the educational system. The problems of decision-makers include not only choosing which alternative is best in some "neutral" technical sense, if that is possible, they must also choose the best alternatives in terms of feasibility of implementation. That implementation involves initial approval from legislative or executive gatekeepers, as well as mobilization first of central-office bureaucrats and later of the teachers who do most of the work in education. Information about implementation includes not only an assessment of the competency of various actors to do what is expected of them, but also information about their disposition to do what is desired.

Proposals for change couched in fundamental terms are likely to arouse considerable anxiety about their implications. The discussion of the *goals* of education, for example, requires a high degree of political consensus if it is to result in action. Most frequently that consensus does not exist, and programs associated with changes in fundamental goals fail for lack of support. For that reason, politicians prefer to talk in terms of intermediate objectives or targets, or even better, the *means* for attaining those targets. Unfortunately we do not yet know enough about the means-ends relationships in education to insure that a given means will produce a desired end. Although goal-oriented, the Chilean Reform was presented in terms of changes in operational objectives and educational practices. The planners' main concern was to insure that those practices would tend to destabilize the

educational system in the sense of prompting further changes in teachers' and administrators' behavior, or in making it "reasonable" to change curricula. Once a given set of behaviors was "unfrozen" it was easier to suggest new patterns without stimulating a discussion at the level of fundamental goals.

Planning is inherently threatening to politicians, in that it tends to reduce their degree of freedom by being specific about courses of action and expected outcomes. Resistance to planning by political decision-makers was overcome in several ways. First, proposals for operational objectives were phrased in open-ended language. Even the model results were used to increase rather than to reduce options. Second, planners enjoyed the personal confidence (and in some cases friendship) of the decision-makers for whom they worked. This confidence was both earned and increased by the planners' ability to help the decision-makers achieve personal and organizational objectives. Third, the planners accepted the validity of pluralist politics, which assumes that human institutions and organizations are not perfect but are changeable. By not chasing the perfect, or optimal, planning solution, and by seeking to increase participation in the planning and decision-making process, the planners demonstrated their commitment to the political values held by the decision-makers. This brought some losses, but it kept things moving. In the case of the conflict with the Teachers Federation, the planners accepted their losses and made do with what they could get. Adjustment to reality, not constant success, was a feature of planning in the Chilean Reform.

These conditions may not hold in all developing countries, but in many it would seem that educational planners operate in a situation in which power is distributed across a broad spectrum of social groups. In such a situation, planning cannot presume consensus about basic values and goals for education. The planner's job in that circumstance is less one of discovering the ideal solution than it is one of helping the body politic to work through its conflicts to derive a compromise that makes some improvement in the general welfare. In such countries, planning is successful when it contributes to raising, exploring, and charting possibilities.

CHAPTER 7

Comprehensive Planning Models: A Commentary on Policy and Program Issues

RUSSELL G. DAVIS

1.0 *A Transitional Note on Comprehensive Planning Models*

This comment on comprehensive planning and systems analysis discusses the educational policy and program issues that can be raised and clarified through the use of comprehensive planning models. The discussion follows directly on the case describing educational planning during the Educational Reform in Chile. The Chilean case mentioned three uses of a comprehensive model during the planning of the educational reform in Chile in the years 1965-1970. Before going further we wish to emphasize the following point:

The focus here is on educational planning issues that can be raised and clarified through the application of comprehensive systems planning models. Our interest is not in the mathematical form of the models or on the algorithms used in computing with the models Models, methods, and algorithms will be covered in Volume II.

The Chilean case focused on the political and organizational context of planning and on the educational and social issues of Reform. Methodological issues, as exemplified in the use of a comprehensive model, were not central. Here methodological issues are central, and we will deal with the applications of the model that were not discussed previously.

2.0 *Brief Discussion of Programming Models*

We will offer a brief, nontechnical description of the comprehensive educational planning model used in Chile. The aim is to explain enough about the model in order that the issues raised for planning may be better understood. The model that was applied in Chile is analyzed in detail in Schiefelbein and Davis (1974). It is a mathematical programming model, specifically a "linear programming model." A simplified version of the mathematical equations which describe the model and a brief graphical illustration of the solution of a simplified version of a linear programming model are offered in the first three chapters of

Volume II. Here we aim to explain the model from an educational planner's viewpoint, and the model will be discussed in the language of educational planners. Those who want a more technical background on programming models can find several authors who present useful treatments of the topic of linear programming. These range from simplified presentations of the basics of mathematical programming by Reinfeld and Vogel (1958), to presentations at a middling level of mathematical difficulty by Gass (1959). A more recent extension of mathematical programming has been toward goal programming, and Ignizio (1976) has written a book that presents the subject as simply as it can be done. Bowles (1969) and Schiefelbein and Davis (1974) discuss their models and methods in detail and illustrate how linear programming is applied to the development of comprehensive educational planning models. The latter book may present more than most persons want to know about how the equations of the planning model were designed and computed in Chile.

Expressed in planning terms, the Chilean model is simply a set of goal, or objective, statements of the type which characterize the opening lines of most plans. (In Volume II, Chapters 1-3, these goal statements are exemplified and stated in the form of symbols and equations. Here we use words and sentences.)

2.1 *The Major Goal or Objective of the Model*

The main goal, or objective, stated in the Chilean planning model is to hold the costs of running the education system to a minimum. (In the Appendix this statement is called "the objective function," and the objective function is to minimize capital and current costs of the system while attaining the other goals stated in the model.) It is a statement of this kind:

Minimize the capital and current costs of the school system over the plan period

There are several other goals, or objectives, that the planner will seek to reach while keeping the educational costs to a minimum. These are the usual social, economic, and pedagogical goals of most educational plans. We will discuss some examples from the Chile model.

2.2 *Economic Goals*

Manpower Goal. The goal is to reach manpower requirements targets, which means to educate and train a certain number of workers in Chile. How many workers? This is determined by a manpower requirements projection, and the results are put into the planning model as minimal goals for the education and training system to attain. In general form this second goal would be stated:

The education system must graduate sufficient numbers to equal or exceed X number of workers with education level Y. In the model

this general statement will be formed into a large number of specific equations which cover the goals for each type of educated manpower required. In this explanation of the model we only give a general statement of the kind that is made into specific equations in the model.

Budget Goals. Another kind of economic goal is to stay within the limits of a reasonable budget forecast. (These limits are called "constraints".) A goal (constraint) of this kind might be stated:

Expenditures in the system can not exceed a budgetary limit of X amount.

2.3 *Resource Limits*

Similar to the preceding goal is the goal that the school system must stay within the limits of the resources that will be available to run the system. Resources that are put into the system to make it function are called "inputs." Two important inputs required for the system to function are teachers and buildings. Hence two goals statements (constraints) would be:

Over the period of the plan, the system must operate within the limits (available or to be trained) of X number of teachers with Y level qualifications.

Over the period of the plan, the school system must operate within the limits (available or to be built) of X square meters of classroom space of type Y.

These last two goal statements are constraints and, therefore, in the model system cannot exceed the limits of resources or inputs. Different constraints can be written for different levels and kinds of education programs in the system.

2.4 *Social Goals*

Social goals are also built into the planning model, in that one of the objectives is to educate a certain proportion of the children in the appropriate age group. By putting these goals into the comprehensive model, the planners followed the social demand approach to planning, as well as the manpower demand approach to planning. The social (demographic) goals could be stated:

Over the course of the plan period at least X proportion of age group Y will be admitted to the schools. (The goal was all children).

The proportion of age group Y admitted to the school in any given year must equal or exceed the proportion of the previous year.

2.5 *Pedagogical Goals and Flows (Promotion) through the System*

Goals that reflect the technology of education or the quality of education are built into the model. The quality is determined by inputs, which are linked to flow and costs.

The first link is in the flow coefficients of the system. These are shown by the promotion, repetition, and drop-out rates. These rates are related to inputs and costs: for example, improving the teacher/pupil ratio will improve promotion rates.

The flow of students through the educational system to graduation is limited by limits on resources allocated to the system in the form of inputs (teachers, classrooms, materials). This flow (promotion) can be increased by increasing the inputs and ultimately the costs. Remember also that the first goal of the system was to hold down costs. Hence the flow, the educational technology (inputs), and the costs are linked in the model.

The technology of the education system is reflected in the input coefficients,[1] which show the amount of inputs (teacher time, classroom space) necessary to provide a year of education in the system. These input coefficients are related to flow coefficients and, in turn, related to cost and budget. If more teachers, space, and curriculum materials are allocated to schooling, the input coefficients are raised, the flows through the system are increased, and the costs are raised. The sequence of linked flow and technology statements might be:

— Current flow (promotion) through the system is limited to rate Z.
— To increase flow from rate Z to rate Y requires an increase of Amount A in Input B.
— An increase of Amount A in Input B raises the cost to C.
— To increase flow from Z to Y will cost C.

3.0 *A General Evaluation of Comprehensive Models*

Now let us return to see what the planner has in his comprehensive model. From a practical planning standpoint the model permits the planner to specify a set of planning goals. We have seen some of these. They are the usual goals of planners, and could as well have been stated in a normal set of sentences and paragraphs rather than equations. In the Chilean model these are economic goals (reaching manpower targets and holding down costs), social goals (educating a certain portion of the age group without respect to social background of the children), and educational technology, or pedagogical goals, in which inputs of teachers, classroom space, equipment, and instructional materials are used to maintain a flow of students through the grades of the system and on to graduation and entrance to the work force.

The advantage for a planner in using a comprehensive model is that the various goals are linked into a set. Thus, one goal, for example the manpower requirements goal, is not attained while at the same time another goal is completely sacrificed, for example the social goal. Goals are not simply set without reference to the resources that are

1. The simplistic assumptions such models make about educational technology and educational quality are criticized by many educators.

likely to be available and the costs of employing these resources to provide education in the system. The major variable operating in, or behind, all of these goal statements is the number of people flowing through the education system to graduation and entrance into the work force. This number can be increased or lowered over the plan years so as to attain the goals that are stated in the model.

The advantage of a comprehensive model is that conceptually it spans and links the educational, social, and economic systems. The disadvantage of the model is that by spanning so much of the system it does not permit close attention to the details of the teaching/learning process itself. The technology of education, the way the teaching/learning process actually functions, is reflected in the model in a very general or aggregate way. When the model is run, the planner must deal with things in a general way. A comprehensive model does not link explicitly all the way down to the instructional process. Stated a little differently, this means that the planner cannot provide the educational manager with explicit guidance as to what he might change to improve the instructional process. This is the classic problem of systems level models. We will return to this point many times in order to make it clear.

The education system is handled at a very general level. This is true of any planning model, but it is more the case when relationships are stated in equations and assessed in numbers. The millions of relationships at the heart of any complex process like education could never be captured in any model with a finite set of equations. Hence, the advantage is that the comprehensive model permits the analyst to solve the entire set of equations (goals) all together. Insofar as possible, the social and economic and educational goals are attained. The model results will indicate the number of students who can be educated at various levels while reaching the social and economic goals and staying within resource and budget limits. This is attained at minimal economic cost. But there is a cost of another kind in using general models. We might call this an epistemological cost, in that we lose some knowledge when we use aggregate models. We will now examine the issues that the model raises to see if it is worth paying the cost in terms of knowledge gained about the system.

4.0 *The Chilean Model Used to Trace Policy Issues*

Several educational issues could be dealt with effectively by using the comprehensive planning model in Chile. The model, or some version of it, was used to explore a number of these questions, primarily by simulating changes in the system and studying the future effects of these changes.

4.1 *Extending Six-Year Primary Schooling to Eight Year Basic Education*

One of the earliest and most critical issues discussed by planners

was whether to extend primary education from six to eight or nine years. The first proposal was to make basic education a nine year program. Given the limited resources and the shortage of classroom space for large numbers of children, the decision was reached to create an eight-year primary or basic school. Educators believed that the social benefits obtained from an additional two years (beyond the sixth grade) would have been even larger with a nine-year school, but they felt that the effort to achieve such a change would put too much strain on the system and its resources. Furthermore, planners wished to use some resources for *reform*, and for some educational planners this meant improving the quality of education, as well as expanding enrollments.

In addition to the question of whether most children would continue on to the seventh or eighth grade after completing six years, the planners had to determine the capacity of the system to provide facilities, teachers, and materials for the increased enrollment; what to do about the attitudes of former secondary teachers who would be assigned to "basic" grades; what to do with the secondary school teachers who might be unemployed; the cost of each alternative; and the political resistance that would be provoked. The planners had to use the model to simulate a basic change in the structure of the entire educational system. Once this basic change in structure was made, the model could be used to project the many different consequences of change in the system structure. One likely possibility, and one that the planners had set as a social goal, was that when basic education was changed from six to eight grades, more children would continue on through grades 7 and 8. More resources would be needed to educate these students. The model could be used to simulate these additional flows, input requirements, and the resulting costs.

Some teachers who had been classed as "secondary teachers" would now be teachers at the basic educational level. How would the affected teachers accept this? The model could not project the feelings of the teachers but it could show how many teachers would be affected. It could then demonstrate whether it was possible that these teachers could be kept at secondary level to replace teachers lost through attrition. The model could trace the cost consequences of these changes. For tracing these issues and their consequences a systems model was essential. It would have been difficult to understand the many problems if they were studied in piecemeal fashion. Hence, *comprehensive planning models permit simultaneous analysis of several effects operating together in various parts of the system. Comprehensive models do a better job of actually simulating political reality where many effects are tangled together.*

4.2 *Automatic or "Social" Promotion*

A second major issue faced by the planners was that of automatic promotion. Actually, promotion is never completely "automatic" in

the sense that all students are moved to the following grade every year. What is referred to here is more "social" promotion, which means that most students are moved along through the system with their normal age group, rather than kept back on the basis of school marks or examination results. In Chile, given an over-all objective of normalizing the age-grade distribution,[2] it was important to improve the flow of students through the system. Use of the model earlier had shown that official repeater and dropout rates could not be correct. Employing an historical series of enrollment figures, the planners demonstrated that official rates gave unrealistic projections compared to present real figures. The analysts used a trial-and-error method to estimate what the real dropout and repeater rates must have been. These rates showed that, contrary to common belief, repetition was a grave problem, while desertion, or dropout, was not significant. The planners then decided to set aside work on the dropout question in order to look for policies and programs to reduce repetition.

The simplest solution was that of automatic promotion. At least some of the planners believed, on the basis of impressionistic evidence, that teachers' marks bore little relationship to either the intellectual ability of children or their academic achievement levels. These planners felt that all children should be promoted automatically at the end of each year, through the first six grades. The model results were used to examine the impact of such a policy on enrollments in grades 1 to 8. The improved flow through the primary grades would create pressure on secondary schools and bring increased costs. The Sub-Secretary wished to know the cost of keeping more students in the system through the eighth grade. Using the model, the planners showed that, contrary to what seemed common sense, improving retention and flow through the system would, over time, actually reduce the enrollment burden. Since costs were driven by the enrollment burden, and a large portion of the resources were wasted in giving inadequate schooling to repeaters, the improvement of flow through the system and the retention implicit in automatic promotion would actually reduce enrollment burdens and ultimately costs. This would not come as an automatic saving, however. The projection implied that the quality of education had to be improved by increasing and improving educational inputs. These consequences were also shown to the Sub-Secretary. Without a comprehensive model that linked enrollment flow-to-inputs-to-costs, these implications could never have been traced. Comprehensive models enable planners to trace complex relationships among variables, and the results often reveal multiple effects over a period of time

Alternatives, such as automatic promotion through the first four,

2 If students are enrolled in the normal grade for their age, for example, seven-year olds in second grade, eight year olds in third, this usually indicates regular flow, and "quality" and efficiency in the system

first three, or first two grades, could also be examined. On the assumption that automatic promotion would increase the heterogeneity of abilities in a given classroom, and hence permit fewer students per teacher, analysts studied the pupil/teacher and cost implications for the entire system. Could automatic promotion mean, for example, that fewer children over-all could be served, assuming that funds were not unlimited? Or, assuming the same class size was maintained, would teachers require some additional training? What would be the implications for teacher training and curriculum reform in the whole system?

5.1.0 *Using the Model to Go from Policy to Program Options*

Using the model, the planners could simulate a variety of policy options to automatic promotion, and they could study the enrollment, cost, and pedagogical effects. They did not assume that automatic promotion was an absolute good If carried out in extreme form, automatic promotion simply meant pushing all children through the lower grades toward eventual failure in the upper grades. The planners believed that the old policy of not-promoting, especially in the first grade, often reflected these discriminatory features:

— It probably penalized unduly for the effects of slower maturation and readiness, in that the selection criterion was largely based on reading skill.

— The children who were not promoted were usually from a lower social class, with a family cultural background different from the school culture. They may also have been affected physiologically by nutrition-induced difficulties They were usually from homes where there was little social organization of the kind that sends children to school regularly, keeps them there, and helps and encourages them while there. The planners argued that if these assumptions about inequality in background and readiness were plausible, then a variety of program options might be required to supplement automatic promotion. Thus the model raised social issues which in turn raised issues of educational policies and in turn led to program options

5.1.1 *Readiness Programs*

One such option might be designed to give disadvantaged children help through readiness programs at kindergarten and pre-school level. This help would consist of enrichment through readiness training, possibly supplemented by health and nutrition and socialization measures If these worked, one option would be to establish social promotion policies at the first grade by promoting all children to higher grades and then apply selective promotion later

5.1.2 *Developmental Reading*

Another alternative is to offer remediation through the first two or three grades in the form of heavy emphasis on developmental reading.

Lack of reading skill is one of the major causes of non-promotion in the schools of all countries. Hence, an improved and longer direct instruction in building reading skills seemed necessary. Tests of reading skill would still be useful at first grade for diagnosis, but the test would not be used to fail the child in the first grade. A better policy alternative would be to promote the child to second grade but to screen out those who failed largely on reading and to place them in special reading programs at the second grade.

The requirements for additional reading teachers would not be large, since the students would have been kept in the school system in any event and served as repeaters in the first grade. Now they would be served by extra teachers assigned to the second-grade level for specific work in reading instruction. These teachers would have to be given special training, perhaps in service, but this item could be added to instructional costs as a measure for improving the quality of the system. Given resource limitations in Chile, educators could not realistically offer much in the form of developmental or remedial reading programs, but the issues raised by the model did serve to prompt consideration of educational programs that would supplement policies such as automatic or social promotion. Model runs estimated the additional outlays implied by some program options. Again and again, the issue came down to costs and resources. Here the model could be used to simulate the difference in costs of the old system, where the enrollment pile-up occurred in the first grade, and a new system where students are pushed along to higher grades

6.1 *Compound Manpower Requirements and Educational Supply Models*

General planning models were also developed and applied in the Dominican Republic (Dominican Republic 1974), in Saudi Arabia and Kuwait (World Bank) and in Chile (Chapter 2, Volume II), and in a number of countries in Asia and Africa This type of model links the education/training system with the workforce, and it is sometimes referred to as a Compound Model Different versions of it have been used in the country studies mentioned above The manpower requirements are projected using the Basic Method which is explained in the instructional units on manpower planning methods in Chapters 8-12, Volume II.

The compound model of Figure 7 1 has four main parts:

Part I shows the manpower stock (workers by sectors and occupations) in the base year, and shows the attrition in this stock over the year In the case of the model in Figure 7.1 the manpower stock is classified into "National" and "Foreign." This would be important in the countries where there are large numbers of expatriates in the skilled labor force.

Part II is a forecast of the manpower requirements for each of the

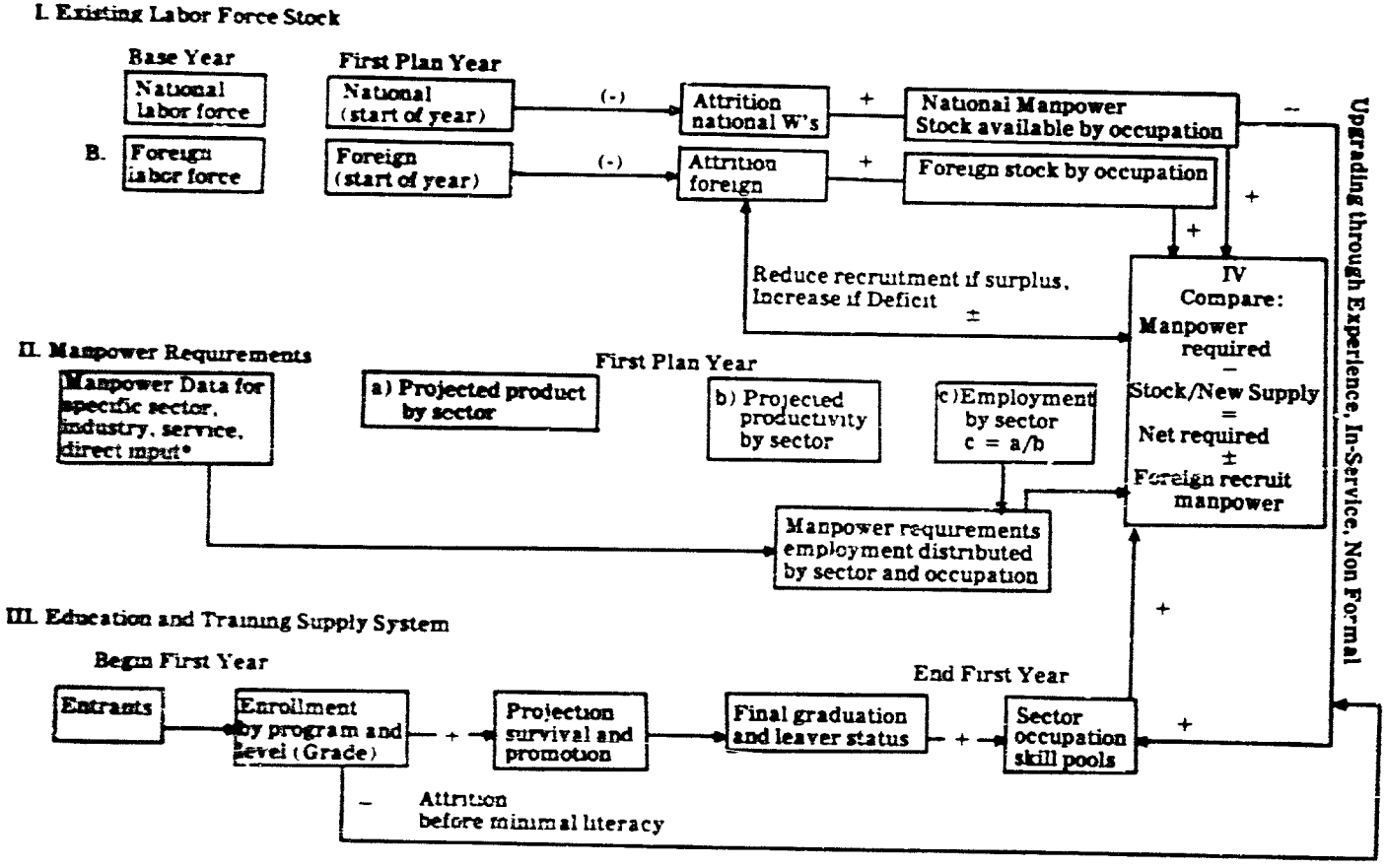


Figure 7 1
A Compound Manpower and Education Planning Model
Source World Bank. Modified.

plan years. It follows exactly the Basic Method explained in Volume II. Employment is forecast by sector and occupation for each of the plan years.

Part III forecasts the flow of educated and trained people through the education/training system and into a skilled labor pool for the workforce. (Chapters 4-7, Volume II, explain enrollment forecasting methodologies.)

Part IV makes a final comparison of manpower requirements and educational outputs:

- Manpower requirements targets are taken from Part II projections.
- The stock, projected in Part I, is subtracted from the manpower requirements, because this stock is already available and need not be supplied.
- The new supply, projected in Part III, is also subtracted from the manpower requirements.
- The result is the net manpower requirements (requirements minus stock, minus supply).
- The net requirements data is used to decide whether additional supplies of skilled foreign manpower are required.
- The comparison of requirements is made for each year of the plan, and for all the years of the plan.

The final result of the compound model is to indicate whether policies and programs are needed to increase education and training in the country or abroad; or whether foreign labor, already educated and trained, should be recruited to fill the requirements; or whether the requirements will remain unfilled and economic growth affected.

6.2 *General Comment on Comprehensive and Compound Models*

The main use of compound models, like the one shown in Figure 7.1, is not in predicting the future balance of manpower requirements and educational supply. No model, no matter how large and detailed it may be, and no matter how skillfully it is designed or how accurate the information supplied, can predict the future. Even less can running the model make some desired future come to pass. Compound and comprehensive models can serve policy planners well in many ways, and these will be briefly discussed.

6.3 *Future Systems Gaps*

Model runs serve to alert the planner to future gaps between manpower requirements and supply. These gaps will appear if the economic and educational changes that are traced from analysis of

past and present conditions continue into the future. The compound model bases its economic growth forecasts and educational supply projections on past and present economic and educational facts. Model runs do not predict the future, but rather show what can happen if current conditions continue as they are, or change in some pattern that can be deduced from the past and present. The compound model will reveal shortages in the supply of educated people for the workforce if present entrance rates and promotion rates continue. The model will also reveal the effect of continuation rates from one program to another and the possible effects of workforce participation rates for various groups such as females, young workers, and rural inhabitants

Projections should also suggest that the future projected is not inevitable, in that numbers and rates can be changed by changing policies and programs.

6.4 *Systems Bottlenecks*

Compound model runs serve the planner in general terms by showing the relationship of different parts of a large complex system, and the effects of one part of the system on another. Hence, comprehensive model runs help systems planners identify bottlenecks in the system. An example in the Chilean planning model was the indication of a bottleneck in expansion of systems enrollments because of a limited output of trained teachers. The model suggested the necessity of a fairly massive in-service teacher training effort, run on an accelerated basis in the early years and developed into a slower-paced, higher-quality effort in later years. The model runs also indicated a bottleneck in the training of skilled workers, unless shorter in-service training programs were offered These programs were projected at high unit costs, and the model indicated that in the long run the workers could be trained more inexpensibely in existing vocational school programs

One bottleneck which prevents flow through the system to higher levels is the effect of school examinations and restricted promotions. Another bottleneck in manpower supply in many countries is low female participation rates in the workforce Yet another may be problems in recruiting or training teachers in science and technical fields to staff programs that produce scientists, engineers, and technicians Some bottlenecks, such as restricted promotion, can be removed quickly with simple policy and program changes. Some require changes in social patterns, changes in the basic structure of the school system, and greatly increased budgets Effects are interrelated.

7 1 *Model Results*

Sometimes model results are counter to common sense, or counter-intuitive. We have seen an example of that in the case of the comprehensive model in Chile Similar results have been obtained using models like the compound model shown in Figure 7 1 Recall the case

Table 7.1 Primary School Enrollment Changes, 1973-1985 [a]

Grades	ACTUAL 1973	P[a]	1975	P[a]	MODEL PROJECTIONS 1985 Same promotion	P[a]	Improved promotion	P[a]	Automatic promotion	P[a]
1	81,134	(.25)	92,371	(.23)	145,571	(.23)	130,274	(.21)	106,702	(.1721)
2	62,787	(.19)	76,827	(.19)	115,295	(.18)	113,828	(.19)	105,462	(.1701)
3	54,702	(.17)	69,911	(.17)	106,983	(.17)	106,184	(.17)	103,912	(.1676)
4	56,008	(.17)	70,678	(.17)	108,828	(.17)	108,735	(.17)	103,292	(.1666)
5	42,201	(.13)	53,098	(.13)	83,543	(.13)	86,738	(.14)	100,688	(.1624)
6	34,123	(.10)	43,317	(.11)	68,665	(.11)	78,035	(.13)	99,944	(.1612)
Total	330,955	(1.01)[b]	406,204	(1.00)	628,885	(1.01)	623,794	(1.01)[b]	620,000	(1.000)

Figures based on enrollment projections carried out in an actual country, which for purposes of this explanation need not be identified. The enrollment projections were carried out as part of a compound modeling exercise. The projections show that by improving enrollment flows through the system over time, the burden on the system is actually reduced, even though more students are taken into the system and retained longer in it. This same counter-intuitive result was demonstrated by using compound model projections in Chile and in Saudi Arabia.

[a] P = proportion in grade [b] >1.00 rounding error

in Chile where the Sub-Secretary was surprised and gratified to learn that the improvement of retention and flow in the system would not necessarily increase enrollment burden and costs. Model projections showed this. Though the result might seem counter-intuitive, it can be illustrated simply with the data in Table 7.1.

Table 7.1 shows enrollments projected for a six-grade primary school using a comprehensive model. Both the Chilean model and the compound model would give these results. Table 7.1 shows the enrollments in the year 1973 and in 1975. These are actual enrollment data. Note the heavy pile-up of enrollments in the first and second grades. If enrollments were flowing smoothly through the system, about 17% of the total would be in the first grade and about 16% would be in the sixth. (There would almost always be slightly more in the first than in the last grade, even assuming, as this does, that population is stable). In this system, in 1973, about 25% of the students are piled up in the first grade, more than twice as many as in the last grade, and the population is fairly stable. In 1975 the situation improves slightly, but there is still a large pile-up in the early grades because of non-promotion and repetition. Actually, in this system a first-grade test was administered.

The right-hand side of the table shows three projections to 1985, using a comprehensive model. In the first one, promotion rates are kept the same, and though the school system grows in numbers, the pile-up in the early grades is still noticeable. In the second projection, promotion is improved substantially, the pile-up begins to disappear, and the distribution over the six grades becomes more even. The final projection is based on near-automatic promotion. Two things can be noted: First, the distribution is much more even. This would be expected with automatic promotion. There is little pile-up in the early grades. What could not be foreseen quite so easily is that enrollment totals for all grades are actually lower for automatic *promotion* Because students are not made to repeat, they go through the system and no longer pile up in the early grades. The system covers more of the age group but there are fewer enrolled Students go on through the system. Actually, the enrollment burden is reduced. The system is more efficient

Comprehensive models can show this gain in efficiency, and they can also show the cost consequences of this. In Chile the costs were not reduced, because the flow through the system was built on a better and more expensive education that was instituted through the Reform. However, the Sub-Secretary had stronger grounds to argue for increased support because model projections showed that more cost-efficient solutions were being instituted in the system This same result has been demonstrated with compound models in other countries. A systems planning model puts together the enrollment flows and the costs.

7.2 *Previews of Systems Future and Lead-Time*

Model runs serve by showing possible effects several years before they occur. This preview provides planners and policy makers with lead-time to develop other options and alternatives to change things for the future.

7.3 *Arraying Policy Options and Alternatives*

The model helps the planner array broad sets of policy and program options in a systematic way. In arraying these options, the policy maker or planner may see relationships among them that are not otherwise easy to identify. Examples would be tradeoffs between reducing economic growth targets and manpower allocations policies (recruitment and support of expatriate manpower), or tradeoffs between manpower allocations policies (recruitment and high-cost support of expatriate manpower) and investments in education to increase the supply of national manpower. Once these broad options are arrayed and understood, it is easier to identify more specific policy and program alternatives within the education and training sector.

7.4 *Linking Policy and Programs*

Model results may not only indicate that there are future problems ahead, but the results may also indicate the advantage of specific program options. These options may be linked in chains of policy and program relations The model may project a shortage of educated and trained workers to meet certain manpower requirements. This problem may be met by increasing the number of graduates of vocational schools, or by training more people outside of formal school programs. The comprehensive model run in Chile indicated that in the long run the vocational school option was lower in cost for some training fields. But this option required an increased output of primary school graduates to enter the vocational schools. This increase would not happen because of the low output in primary schools The output could be raised by institution of a policy of near-automatic promotion, but this required certain programs to train more teachers, and the model indicated that they could be trained more cost-efficiently in-service. Also, the possibility of assigning teachers in teams to certain areas could increase flow at lower cost The model enabled the planner to track through the system a series of related program and policy consequences that could not be understood as well when each program variable was examined in isolation

7.5 *Pilot Scale Trial of Options and Alternatives*

Once options have been identified, they can be tried at pilot scale, the outcomes evaluated, and the effects of extending programs throughout the system can be simulated Hence, models can serve for experimen-

tation with both large policy and specific program alternatives. Different outputs and different resource requirements can be estimated. The effects of these alternatives can be traced throughout the system.

7.6 *Identifying Information Requirements*

Running a model also helps to identify information that is essential for planning and policy development. The model does not produce the information or refine it. The model identifies the information required and specifies the form and currency required of the information. To service the model and to keep it running requires the gathering and updating of information.

In working with models, planners will realize that no model is ever perfect in form or complete in information. A national level model can be disaggregated and refined to help planners understand regional and local realities.

8.1 *The Model and Social Learning in Organizations*

More than any other outcome, a systems model should serve as a learning experience for planners, policy makers, and decision makers. In the ideal situation, learning should increase for the model makers and for all other individuals and groups who are affected by the economic and social events portrayed in the model. In obtaining more current information the planner increases his knowledge of the education and training system. In turn, this knowledge can be diffused more widely to inform others. But the increase in knowledge and learning should go beyond an increase in factual knowledge and cognitive learning.

Discussion of the model should promote dialogue among planners and communication with people outside of planning. In this exchange the most important outcome is social learning. In discussing the design and the results of the model, the participants should increase their understanding of the assumptions, values, and preferences — even biases — that have shaped the model and the real world it portrays. The discussion with the planner should increase the awareness of others as to their assumptions, values, and preferences. Most importantly, the planner can increase his own awareness of his own assumptions, values, and preferences. In this exchange the true value of a general model is realized through social learning.

FOREWORD TO CHAPTERS 8 AND 9

Towards Equality and Equity: A Central Route for Educational Planners

Equality and equity have such profound and growing significance for educational planners and policies makers that the themes are worthy of several different treatments. The first treatment here is mainly conceptual and exploratory. It defines and differentiates *equality* and its related term *equity*. Equality is shown by descriptive and measurable features of the distribution of some asset. The second term, equity, is subjective, normative, the result of a value judgment.

Equality in the distribution of education is explored, first, as it applies to equality of access to education. Next, equality is analyzed as it applies to the distribution of inputs to education. Following this, equality is assayed as it is applied to equalization of less tangible features of educational quality. The exploration of equality then moves on to equalization of educational outputs, usually measured by a test of education achievement. Finally, equality is taken to its conclusion in social equity, when it refers to equalization of educational effects — those outcomes, economic and social, which follow schooling and are attributable to it. Equalization of outcomes is seen as something somewhat beyond the control of educational planners.

The conceptual framework in the first treatment, which is primarily rooted in moral philosophy and logic, is then applied to a survey of studies of the various manifestations of inequality in education in the less developed countries. Implications for planners and policy analysts are sketched out, but the objective of the paper is to raise issues along an exploratory route that is central for policy planners in education and other social services. Though the aim is not to instruct in planning methods, but rather to raise planning issues, some analytic methods assessing equality and equity are briefly described.

The conceptual framework of the second exploration of the issue of educational equality is primarily rooted in economics, more specifically in neoclassical economics, and more precisely still in human capital formulations of education as an investment. Using the human capital framework, two main effects are explored: first, equality as indicated by the distribution of schooling; and second, equality as indicated by

the distribution of income. The effect of schooling on income, as it is analyzed in human capital, rate-of-return studies, is examined. The statistical basis for asserting the relationship is established, and conceptual limitations in the analysis are discussed. The Gini coefficient, for measuring equality in a distribution, is applied to the distribution of education in the populations of developing and developed countries. An empirical segment of the study computes the Gini coefficient on a large sample of countries.

Some general policy results of interest to planners emerge. Countries differ widely in the amount of inequality in the distribution of schooling. The relationship between the average amount and inequality in the distribution of schooling is negative — the more education a country offers, on the average, the more equally it is distributed in the population. The average amount of education in a country is also related to GNP per head. High-income countries usually have equal distributions of schooling, although high income does not always go with equality. Finally, the effect of education on income is explored, primarily within the human capital framework. The relationship between education and income is unquestionably strong, but most of the studies reviewed do not make clear how much of earnings and income differences are directly attributable to education.

Finally, the second treatment of the theme of equality in education raises some broad strategical considerations for planners attempting to promote greater equality, and social equity, through education. In general terms, greater equality in education is attained when basic education is provided universally, and development in secondary and higher education is restricted. Later, secondary education may be opened; and only much later is higher education expanded. This policy prescription, of course, may conflict with policy and program indications provided by manpower approaches to planning. Most manpower analysis indicates the need for graduates of higher education from the outset.

Restricting the expansion of higher education may often run head on into conflicts with powerful groups, either privileged by economic status, or privileged in party and power terms. Social policies often do conflict. When good outcomes conflict with bad ones, choices are clear. But good ones also conflict with good ones, and no one can win. The task of the planner is to help policy makers and managers mediate these no-win conflicts as best they can.

CHAPTER 8

Education and Equality in Developing Countries

SUZANNE PRYSOR-JONES

1.0 *Introduction*

This chapter examines the concept of equality of education and traces the implications of research on educational equality in developing countries to equity issues in policy planning. The exploration of equity in this chapter attempts to furnish some basis in moral philosophy for Chapter 9, which examines equality within the framework of neoclassical economics and human capital theory.

A brief introductory comment is presented with a view to clarifying issues commonly associated with the theme of equality. The terms *equity* and *equality* are sometimes confused. Bronfenbrenner (1973) distinguishes between these concepts by taking equity to mean social justice, or fairness. *It refers to a subjective and ethical judgment. Equality refers to the pattern of distribution of something, such as income or education, for example.* Equality is a more objective, descriptive term. The equality of an income distribution can be assessed, usually in terms of measured deviations from a hypothetically equal situation, as in studies using the Lorenz curve or the Gini coefficient. But the equity, or fairness, of a situation of inequality can be evaluated only by appealing to value judgements.

For the purpose of this paper, *equity* and *equality* are used as Bronfenbrenner indicates: equity as fairness and equality referring to distributions of income, services, education, or certain types of treatment. Note, however, that some forms of equality, such as equality of opportunity, are far from being easily measurable. Value judgments are always involved in the choice of the indicators used for their description.

Issues of equality are treated in this chapter without making specific claims as to what is equitable. It should be noted, however, that no policy decisions concerning equality can long evade the question of how much inequality and what type of inequalities are acceptable within the standards of social justice held by different groups in socie-

ty. At various points in the paper, the consequences for equity of certain inequalities in educational systems are suggested. This bears testimony to the close links between inequality and notions of equity, but is not intended to contradict the belief that social justice must be treated as problematic in each cultural and historical setting. Definitions of equity evolve in accordance with the challenges of changing environments and, therefore, cannot be fully predetermined. Policy decisions to reduce, increase, or neglect inequalities will be legitimated or invalidated by definitions currently accepted by a majority, or imposed by minorities, in each context.

The values espoused by the author of this paper cannot help but influence the way in which the discussion of equality is put forward. In order that the reader be forewarned of underlying biases, the following statement by Tawney (1952) is presented as an explicit acknowledgement of them:

> The individual differences of which so much is made . . . will always survive, and they are to be welcomed, not regretted. But their existence is no reason for not seeking to establish the largest possible measure of equality of environment, circumstance, and opportunity. On the contrary, it is a reason for redoubling our efforts to establish it, in order to ensure that these diversities of gifts may come to fruition.

1.1 *Rationalizations of Existing Inequalities*

Several sets of arguments are frequently advanced in defense of the maintenance of some forms of inequality in modern society. One is that the goal of efficiency should have priority over that of equality in cases where these two conflict. From this position considerable controversy arises as to whether the goals do conflict, in what circumstances they conflict, and what evidence should be admitted as proof of this. As far as economic development is concerned, several theorists have in recent years challenged the commonly held assumption that socioeconomic inequalities necessarily facilitate growth (Myrdal 1971; Owens and Shaw 1974; Chenery et al. 1974). Others have severely criticized, on moral grounds, the neglect of inequalities in less developed countries (LDCs), regardless of their relation to growth. They argue that economic growth is only one rather narrow definition of development (Seers 1969; Goulet 1971). This criticism underlies much of the analysis presented in this paper.

Another view is that the amount of inequality that can be tolerated as equitable should be determined by the "objective" mechanism of the market. The assumption here is that values can be reduced to some measurable form of "utility." Utilities can be measured by the same yardstick and compared with each other. Thus, utility functions can be plotted and tradeoffs assessed. Each individual will then be able to maximize utility without diminishing the utility of others. Here there

is a faith, not shared by the author, that one right formula can be found.

Rawls (1971), by contrast, considers that the only justification for increasing inequality, in a dynamic situation, is when the changes improve the absolute welfare of the most disadvantaged population groups. The improvement must be demonstrable. From this argument, it would seem that large amounts of inequality could be justified by small gains for the less favored. This principle, as Rein (1976) points out, does not provide a sound basis for policy making. Note that the definition of poverty as relative, and linked to inequalities in the control of resources, challenges the legitimacy of any increase in equality, since this is tantamount to raising levels of relative poverty.

1.2 *Three Concepts of Equality*

At least three concepts of equality are used frequently in discussion. This causes confusion when it is not clear which is being referred to at any given time.

First, there is the idea of providing equal treatment to those who, according to an acceptable criterion for categorization, are considered equal. Here there is discussion over which criterion should be considered relevant for the distribution of some service or reward. Should all children receive the same type of education because they all fit into the same category as "children"? Or is this tantamount to treating non-equals equally and, therefore, according to some definitions of equity, unfairly? If children are equal only in age, but not on measures of ability, or sociocultural background, should they be grouped by the latter criterion and given differentiated treatments?

Second, there is the notion of achieving a society with less inequality of outcome, measured in terms of income, wealth, status, power, dignity, and so on. Here, equality of treatment is regarded as a *means* to the end of attaining a greater degree of equality of outcome. Unequal treatment for unequals is supported when it is thought to bring this about, but rejected if it seems to serve chiefly to perpetuate or exacerbate existing inequalities.

Of course, opinions differ widely as to how far circumstances can or should be equalized. Arguments about the need for incentives, the value of excellence, and the dangers of homogeneity are brought into play in defense of inequalities. One approach is to change the societal connotations associated with different forms of inequality. Whyte (1975) describes how this has been effected to a large extent in China. Measurable inequalities still exist, but they have been divested of some of the concomitants that accompany them in other societies. The *effects* of inequality are thus damped.

Similarly, Rein (1976) argues that policies should aim to "spread most widely what is most valuable in life, namely dignity, self-esteem and self-worth." The aim is not to redistribute resources as an end in

itself. He doubts, however, that this can be done in most societies without a more equal distribution of finite resources. He points to the danger of diverting attention from this necessary means to the end.

Third, much attention is given to concepts of equality of opportunity. In the United States, the idea of the just society is one that offers equality of opportunity to compete for societal rewards. This idea has been important in orienting social policy, whereas equality of outcome has not received such widespread support. This form of social Darwinism is espoused, both in developed and less developed countries, but the resulting downward mobility which inevitably occurs in a freely competitive situation, is not truly accepted. Rein (1976) points out this contradiction and writes, "Equal opportunity is accepted as a doctrine on which public policy must proceed in an open, democratic society, yet the argument is not secure, for the principle is accepted while its implications are rejected."

Further controversy arises over the question of how far equality of opportunity is possible at all without a considerable degree of over-all equality in society. Jencks (1972), among others, argues that "equalizing opportunity is almost impossible without greatly reducing the absolute level of inequality, and the same is true of eliminating deprivation." This conclusion seems especially relevant for LDCs. Huge disparities in socioeconomic conditions keep poor majorities trapped in the vicious circle of poverty and lack of achievement, unable to take advantage of even the meager opportunities available (Myrdal 1971).

The arguments justifying these general concepts of equality are not fully examined in this study. They do, however, underlie much of the discussion of different types of equality of education and, in this context, are touched upon throughout.

This chapter does not explore the historical processes whereby education came to be so closely linked to the pursuit of equality, although these antecedents may condition current thinking on equality in education. As a widely valued good or service, education came to the notice of egalitarians as something to which everyone should have equal access. However, as relevant background to discussions to come, it is useful to consider the functionalist view of the link between education and equality. When the instrumental function of education as preparation for the workforce became more central, the usefulness of education as an intermediary for the measurement of "merit" also came to the fore. Egalitarian ideals which oppose categorization on ascriptive bases (race, class, caste) accept the notion of each person establishing his place in the socioeconomic hierarchy through individual effort. Thus, each was to be given the opportunity to prove his own merit, and the educational system seemed the best mechanism to rate relevant abilities in an objective way. So education acquired the role of classifier of man, certifier, and gatekeeper to his "right" place in the production system.

As Coxon and Jones (1975) note, "the phrase equality of opportunity

is often used with respect to the relationship between education provision and social mobility." This connection appealed to a sense of justice on two counts. First, education provided a selection process that was accepted as equitable. Supposedly, education treated individuals as unequals only with regard to achieved characteristics and abilities relevant for the distribution of societal rewards. Second, overall inequalities in society seemed justified by the fairness of this selection process. It was assumed that everyone had an equal opportunity to prove ability in the education system and, therefore, to gain access to a job that matched his established merit. The differing levels of ability demonstrated in school were accepted by society in the same way as were different contributions to society. Any inequalities of outcome derived from differences in ability were therefore legitimized.

From the economic point of view, the use of education for the identification of the "best" was quite rational. Since the educational system not only instilled the attitudes and values required for hard work and reliability, but also transmitted useful skills, its operation as a classifier seemed congruent with the economic goals of society. Equality of opportunity through education was seen as an efficient way of assuring that the able reached the positions where they could be most productive.

These arguments, joined with notions that education would also help to reduce over-all inequalities of circumstance, have given rise to many of the studies, to be discussed, which will highlight the importance and far-reaching connotations of issues of education and equality.

2.0 *Equality of Education*

No principle of equality of education can be used to guide policy planning in all circumstances. As equality is translated into operational terms, it can be applied to a range of different aspects of the educational system. What is more, the different types of equality, all employed in the name of some interpretation of the egalitarian ideal, may even conflict with one another. For instance, we cannot provide an equal educational service to all children — a common curriculum — if we believe that, in order to give all children an equal chance to participate in the occupational reward system, we must offer special compensatory education to under-achievers. An attempt is made here to explore these concepts, the assumptions underlying them, and also the theories that have been put forward to support or challenge them.

2.1 *Equality of Provision: Access — the Provision of Universal Basic Education*

Several streams of thought lend support to the theory of a universal education service to which all children should have access by right.

First, the humanistic idea of education as a valued good in itself that, on grounds of equity or fairness, should not be withheld from anyone, has been and is powerful. Education is seen as a civilizing influence, "the preparation for complete living" in Spencer's terms (1936), basic if human beings are to develop their potentialities. Education in this context has been commonly equated with schooling. This largely ignored the value of indigenous methods of socialization and apprenticeship and, in general, led to certain denigration of the culture of the illiterate. There have been vociferous challenges in recent years to these assumptions about the inherent value of schooling. Ivan Illich (1971) would rather see universal "de-schooling" then universal schooling, on the grounds that most education of value takes place in the conduct of everyday life. Support for "de-schooling" is largely found among Western critics who have had access to considerable schooling.

Other groups have favored universal education for political reasons. The acquisition of shared attitudes and values, which presumably takes place through schooling, fosters a measure of homogeneity and, in some settings, political homogeneity. Thus, Julius Nyerere (1967) writes, "The education provided by Tanzania for the students of Tanzania must serve the purposes of Tanzania. It must encourage the growth of the socialist values we aspire to . . It must ensure that the educated know themselves to be an integral part of the nation and recognize the responsibility to give greater service, the greater the opportunities they have had." It has also been held that schooling makes people more apt and informed participants in a political system Schiefelbein (1975) observes that "basic education . may be a key factor toward a minimum level of democracy in developing countries." Again, these views have been criticized as underestimating the knowledge and common sense of the unschooled, or as using educational systems for the purposes of control and manipulation.

The idea that there exists a set of values and attitudes which could be classified as modern, and that development, in terms of economic growth, could be accelerated by making men modern, also bolstered the rationale for universal education Inkeles and Smith (1974) found clear correlations between years of education and modernity. Similar psychosociological approaches to development have been attacked on several counts they accept too narrow a view of development; they tend to ignore the broader structural determinants of underdevelopment; they imply that there exists one set of appropriate attitudes for development They suggest a single-road-to-modernization However, few contest the fact that education can form children's attitudes and values, and socialize them for the social roles that a modernizing society requires them to perform Countries with widely differing development strategies and political systems support universal education for this, among other reasons

From the economic point of view there are at least two lines of

reasoning in support of equal provision of basic education. The first is infused with the thinking of the human capital theorists (Schultz 1961; Becker 1964). Education is seen as an important way of improving the stock of human capital, the factor that seemed to account for a "residual" of economic growth that could not be accounted for in other ways. Furthermore, since the wages of the educated are higher, on the whole, than those of the uneducated, and conventional economic theory holds that wages reflect the marginal product of labor, it seemed clear that education causes, or at least aids, greater productivity and growth. An assumption here is that schooling is, in fact, relevant to the roles required in the labor force. Job skills may be better learned through in-service apprenticeship, though many authors (Dreeben 1968; and Bowles 1975) have noted the importance of the school in instilling work-oriented values and appropriate habits that are presumably related to worker productivity.

Beeby (1969) states that Lewis supports the broad-based provision of primary schooling on two counts. The first is on the grounds of equity, the second is on the grounds of the economic payoff that will accrue from the efficient identification of the best brains in a given country. Near-universal basic education must be provided if society is to succeed in selecting all its promising human resources in order to give them further training and thus develop their full potential productivity. In keeping with his modern-sector approach, Lewis (1954, 1955) tempers the argument for equity by advocating universal education only for those outside the subsistence sector. Because educated rural people tend to migrate to the cities, Lewis suggests gearing the expansion of rural education to the capacity of the rural economy to absorb the educated. Equality of provision is thus to be bounded by considerations of economic and political expediency.

Others who favor equality of access to basic education in LDC's have been concerned with the frequent imbalances between different regions of a country, between the urban modern and rural traditional sectors, and between the sexes. The educational inequalities encountered usually reflect inequality generated by limited resources, colonialism, modern sector development strategies, and traditional sex-roles. These factors must be confronted in any serious attempt to redress imbalances.

2.2 *Equality of Provision: Quality of Education*

Associated with the idea that all children should have access to basic education is the belief that this education should be of equal quality. Since the quality of schooling is hard to assess, the tangible inputs to the system have often been used as indicators of some measure of quality. These include the physical condition of schools, the number and type of books and materials used in the teaching process, the student-teacher ratio. The assumption here is that these inputs will af-

fect the "success" of the education offered. Disparities in quality of inputs are unfair because they adversely affect the children who must learn in less advantageous conditions.

Studies carried out in the United States by Coleman (1966), Jencks (1972), and others have analyzed the relationship between differing levels of school inputs and successes, measured by school achievement scores. The results have failed to show strong correlations between these variables, and this has led to some skepticism about the importance of conventional indicators of educational quality. In fact, the indicators used by Coleman to denote school quality showed only small differences between schools, the largest disparities being in the social and academic characteristics of the student environment. Schiefelbein (1975) has discussed the relevance of this research for developing countries. He points out that the variation between the schools studied in the United States is much smaller than that to be found in LDCs. Since "research carried out in Brazil, Colombia, Chile, Puerto Rico, and Venezuela . . . shows that school variables make a substantial contribution to explain the total variance in educational achievement", Schiefelbein suggests that there are probably threshholds below which school inputs do make a difference. Until these studies have been fully examined, the conclusions imported from other cultural contexts should be treated with caution

A strong argument in support of equality of school provision arises if education for its own sake, rather than education as a means to some other end, is given some weight. Jencks (1972) affirms that eliminating differences in school quality "would not do much to make adults more equal, but it would do a great deal to make the quality of children's (and teachers') lives more equal " In the humanist tradition this is a more valid orientation for educational policy (Jackson, 1973)

2.3 *Equality of Access through the Provision of Free Education*

The idea of free education is closely related to the goal of universal schooling. The underlying ideal is that no one should be denied the oportunity of education on the grounds of poverty Inequalities in the possession of material resources should not set a pattern for the distribution of education Such discrimination is considered to be inequitable. The view is that the state has the responsibility to ensure the availability of free education Supporting this view is the belief that education is good, *per se*, and that society as a whole is a better place if all participants are educated.

There seems to be an assumption here that free education will insure equality of access to education and also that the main obstacle to the consumption of education is its direct costs. In fact, the free provision of the service is only a partial step toward equalizing even the economic costs of education for the user. The heaviest cost of education can be foregone earnings of the student. In LDCs, children's labor

cannot be overlooked. Even very small children often contribute with unremunerated household labor to the family income. In order to send a child to school, the family must often incur other expenses — those of buying books, or suitable clothes for the student. These costs can limit access. Thus, to equalize the costs of education for all families would require policies which go beyond providing "free" schooling (schooling without fees).

The view that equal access to education is not assured by free schooling is reinforced by evidence of patterns of attendance and attrition in LDCs. Thus, Bhalla (1973) notes that "a survey of Indian villages found that attendance in free primary schools varied systematically with family income." Similarly, Husen (1972) notes that many other factors, aside from the provision of free schooling, determine effective access to education. He points out:

> Recent surveys of existing research on participation rates and school achievement as related to social class (for instance, background studies to the 1970 O.E.C.D. Conference on Policies for Educational Growth, O.E.C.D., 1971) provide fairly consistent evidence that extended provisions for education, and thereby increased formal accessibility to free secondary and higher education for all children of a given age, have not considerably changed the social structure of the enrollment to any great extent.

Given, then, that post-primary education is disproportionately consumed by children from the middle and upper classes, the argument is made that free provision of these services has regressive effects on the distribution of income (Jallade 1974; Psacharopoulos 1976). Free schooling can be tantamount to a public subsidy for the already more advantaged.

The equalizing effects of free education are further obscured in countries where a private educational sector is allowed to coexist with public schooling. Educational stratification may be reinforced by such a dual system, in clear contradiction to any wider notion of equality.

2.4 *Equal Treatment of Students: Common Curriculum for All*

The principle that underlies the plea for equal treatment is that the school should not support or foster differentiation among pupils by providing them with unequal learning experiences.

A common curriculum has been considered equitable. It can prevent tracking and *a priori* exclusion of children from further education and, therefore, from certain occupations. Selection can be made as late as possible on the basis of ability, without premature prejudgment of a child's chances. Coleman (1967) identifies this position as constituting a first stage in the evolution of the concept of equality of educational opportunity.

There is here an assumption that the common treatment of all will

produce some sort of equalization of the results of education; that, even if children are not equal to start with, the educational mill will turn out a more homogeneous final product. Another related assumption is that there exists a single type of education that is adequate for preparing children for adult life. Therefore, all children must be given the opportunity to benefit from it.

Many arguments have been made to counter the common curriculum position:

(a) Children have differing abilities and should be given the choice to develop their particular abilities and interests through individualized curricula.

(b) Giving equal treatment to unequals will not produce greater equality but rather the converse. The idea of a common curriculum is, in fact, contrary to equality of opportunity (defined in terms of equal educational achievement). Schools must give extra and special attention to the socially or intellectually disadvantaged if differentials are to be narrowed — the concept of positive discrimination. In Husen's (1972) words: "Every child should have equal opportunity to be treated unequally."

(c) Children are expected to perform differential roles in increasingly complex societies. The education they receive should prepare them for these roles; and it therefore, cannot be the same for everyone. Here the assumption is that education is role specific, or at least role-related.

On this theme, Coleman points to the dilemma between the goal of equal curricula and what he calls the second stage in the changing definition of equality of opportunity. This "assumed that different children would have different occupational futures and that equality of opportunity required providing different curricula for each type of student." Coleman notes that no educational syrtem has resolved the tension that arises in accepting the child's expected future as given. This would require providing a differential curricula, but also keeping open a child's occupational options as long as possible by exposing him to a common curriculum.

(d) The content and style of education must be context-dependent and adapted to each specific cultural environment. It is, therefore, inappropriate to insist on the same curriculum in different regions or sectors of a country. In LDCs, examples abound of wide differences between regions of the same country, in language, ethnic group, occupation, and general orientation toward the world. There is a dilemma of whether to respect these differences by providing specially tailored services — that is, different treatment — or whether to attempt to foster cultural homogeneity and equal educational attainment by imposing a single type of educational experience.

2.5 *Equality of Education Output: School Achievement*

Coleman (1969) in his essay on equality of educational opportunity, quotes the concepts of equality defined by the Education Survey of Equality of Educational Opportunity, carried out in the United States under the Civil Rights Act of 1964. Five definitions are given, the first three dealing with differing inputs to the educational system. The last two deal with the *effects* of the system on students and concern "the consequences of the school for individuals with equal backgrounds and abilities" and "the consequences of school for individuals of unequal backgrounds and abilities." Equality of opportunity is thus defined as "equality of results."

For children who start equally, this would mean providing a common educational experience. For others who might need it, compensatory treatment would be necessary. In both cases Coleman notes that the concept of equality implies "*effective* equality of opportunity, that is, equality in those elements that are effective for learning."

Following this concept of equality in education, Coleman states that "schools are successful only insofar as they reduce the dependence of a child's opportunities upon his social origins. Thus, equality of educational opportunity implies not merely 'equal' schools but equally effective schools that overcome the differences in the starting point of children from different social groups." (See Condorcet on two kinds of inequality, Chapter 2).

Full equality of opportunity (of results) would, in Coleman's view, be shown by a convergence in the average scores of different population groups. Since this effect depends on the "relative intensity" of in-school versus environmental influences on the child, the success of the educational system would ultimately depend on this balance. Coleman argues the logical impossibility of total attainment of this kind of equality, given the cultural baggage that each child brings with him to the school, and the differential support that he receives from his family and environment in a host of different ways.

There are, however, some strategies for organizing schooling that can increase or decrease inequalities of opportunity within the educational system. Given that most academic selection procedures discriminate against children of lower socioeconomic status, selection can be delayed as long as possible. This minimizes the tracking and segregation of ability groups that inevitably affects achievement. Several LDC's (Korea, El Salvador) have adopted a policy of automatic promotion between grades, at least in primary school, to combat the characteristically high repetition and dropout rates that affect the opportunities for academic success of less advantaged children. Here a comment made by Tawney (1952) on equality is of particular revelance: "The important thing is not that it should be completely attained, but that it should be sincerely sought."

Similarly, policies encouraging the provision of pre-school education

for the disadvantaged are based on the recognition that some children's chances of success in the educational system are already handicapped when they first enter school. The idea of offering poor children a head start through pre-school services, or at least counteracting nutritional and health problems, is gaining currency in developing countries. While such programs can only address a small number of the factors that produce inequalities in children's educational opportunities, several arguments can be made for their intrinsic merit. Any assistance that can be afforded the needy child during the early, most important formative years of life, can be seen as desirable, even if direct effects on equality are not immediately observable.

The idea of assessing equality of results — the "intensity" and effects of schooling — is important because it draws attention to what actually happens to the child during the process of education. This requires a more comprehensive view of the problem of inequality in education. It includes, but goes beyond, preoccupations with equal inputs and access. The measurement of the process of education is not easy. LDC's may use unreliable teacher/classroom tests, or else borrow and invalidly apply standardized tests from developed countries. These tests may not have been valid in the first place.

2.6 *Equality of Educational Outcomes: Out-of-School Achievement*

The issue of the effects of education on equality has been taken further by those who hoped that the education would serve to promote a greater level of over-all equality in society. Clearly, more educated people have higher earnings and a better life-style. It seems reasonable to expect that as more people have the chance to be educated, they will become more productive Disparities in income will tend to be reduced as increased productivity brings increased earnings

Jencks (1972) challenges these assumptions by pointing out that the roots of over-all economic inequality lie not in unequal educational opportunity, but rather in the stucture of the work force and the differential rewards between and within occupation He notes also that giving everyone more credentials cannot provide everyone with access to the best-paid occupation It can only raise earnings if it makes people more productive within various occupations There is little evidence that it will do this If this argument is correct, equalizing everyone's educational attainment would have virtually no effect on income inequality Jencks' argument is briefly stated in his assertion: "If we want to equalize incomes, we must do so directly, rather than equalizing something else and hoping that this will redistribute income" (Jencks 1972).

Schiefelbein again recommends caution in applying the result of Jencks's work to developing countries. He mentions, for instance, that

"partial research in Latin America shows that education has a significant impact on income and occupation" (Schiefelbein 1975).

The relationship was examined in the United States by Jencks who studied the significant correlations between income and "all the other characteristics that differentiate" between students. This analysis showed the impact of education to be less importantly related to out-of-school outcomes than had been thought (see critique of meth., Chapter 3, Volume II).

Boudon (1974) studied the effect of changes in school attendance and attainment patterns in industrialized countries on Inequality of Social Opportunity (ISO) and social mobility. He concluded that the structures of social and economic stratification, and not the school system, are mainly responsible for inequalities of both educational and social opportunity. He writes:

> Thus far it has been impossible to relate differences observed in the mobility structure of various societies to any particular factor. Even if we are prepared to accept that they are to a limited extent *correlated with* the development of the educational system, we still have failed to demonstrate that the latter factor has any *influence* on mobility.

There is an inherent logical conflict between objectives, even if attainable, of first using education as an equalizer, and then using the educational system to select the able in a way that promotes one notion of inequality of opportunity. In Husen's words (1972), "the school cannot at the same time serve as an equalizer and as an instrument that establishes, reinforces and legitimizes distinctions."

The role of the educational system in reproducing and reinforcing the inequalities that exist both in society at large and in the structure of the workforce has received considerable attention. Bowles (1975) charges:

> Educational policy is thus an instrument in class conflict. As part of a viable political movement which can effectively challenge the class structure and uneven development of the capitalist economy, educational policy might be used as an instrument for social equality. But to discuss the possible egalitarian functions of schooling in the absence of such a thrust against the capitalist order is worse than idle speculation.

Ivan Illich (1969), from a different standpoint, asserts:

> Each dollar spent on schooling means more privileges for the few at the cost of the many; at best it increases the number of those who, before dropping out, have been taught that those who stay longer have earned the right to more power, wealth, and prestige. What such schooling does is to teach the schooled the superiority of the better schooled.

Behind these statements lies the controversy of whether the educational system can influence the social structure or whether it is merely a product of wider societal forces.

Simmons (1974), in addressing the question of how education affects equality in LDCs, also comes to the conclusion that, rather than helping to equalize society, it tends to increase disparities. He writes: "While schooling is not the only factor in increasing social inequality, it appears to be an essential one becaue it legitimizes the achievement of high-status occupations and increases the human capital of the rich." In discussing whether the educational system can, with reform, have an effect on reducing inequality, he stresses the interdependency of education and other social factors:

> If we assume that both the structure and processes can be changed, and that, at the same time complementary efforts are made in macro-economic policy, like narrowing the trends in income differentials, decertifying the hiring practices of employers, and taxing the benefits of education, then the possibility that educational investment could reduce inequality is sharply improved. Even the most drastic educational reforms, if isolated from the economic mechanisms, are not likely to achieve even modest equity objectives.

3.0 *General Characteristics of Educational Systems*

Some important issues concerning the equity of educational provision are brought out in analysis of the general characteristics of the educational system in LDCs. The very shape of the educational pyramid (sharply pointed top) may indicate restricted access to different levels and programs in the system

In studying the educational system of Liberia, the Harvard Institute for International Development team (1976) noted limitations and distortions in coverage indicated by the quantity of services provided Approximately 47% of school-age children never entered the school system. Of those who entered, only 261 out of 1000 completed elementary school. This low coverage of basic education was contrasted with a relatively rapid growth of secondary education. Annual growth rates of enrollment at different levels were shown to illustrate this. During the period 1971-1976, the annual rate of growth for primary schooling was 6%. For the junior high level it reached 12%, and for senior high 22%. But this finding may be caused in part by the difference in the base figure, with primary much larger at the outset.

High social demand for education coupled with limited government resources caused the expansion of the private sector which, at primary level, enrolled 33% of students in 1974 as opposed to 29% in 1980. These trends point to a tendency toward greater inequality in educational coverage.

Manpower requirements for an educated workforce have tended to

emphasize the development of secondary schooling, technical training, and higher-level manpower. This is partly attributable to the view that development, centered on a technologically sophisticated modern sector, requires educated workers. Rate-of-returns studies, in an attempt to assess the costs and benefits of education in purely monetary terms, have indicated high returns to post-primary education, sometimes leading to the suggestion that investment in human capital should be increased (Becker 1960; Carnoy, 1967). The conclusions and the approach itself have been criticized (Vaizey 1970; Robinson 1971). Chapter 5 in this volume examines and criticizes the assumption that education increases product, which increases earning, which increases return to education. This assumption is basic to the human capital theory and to rate-of-return analysis based on human capital notions.

Given a view of equity that considers it unjust to deprive a child of the benefit from basic education, it would seem inequitable to foster the unequal access to education that results when the provision of primary schooling is limited. If efforts are made to broaden the base of the pyramid towards 100% enrollment, this particular problem of the inequality of initial access can be minimized. Attention can be turned to the process of selectivity and access to higher educational levels, and the equality of school imputs at all levels

The consequences of broadening the base, rather than the middle and upper levels of education, are further illustrated by consideration of the cost involved. The opportunity cost of providing secondary school to one child may be the provision of primary school to several, given cost differentials between levels For Liberia, the HIID team noted that provision could be made for 4 5 primary students for the cost of one secondary student. Jallade (1974) shows a similar ratio for Colombia, based on total public expenditures per pupil in the public sector, and a ratio of over 5 5 secondary students for the cost of one in higher education. Simmons (1974) calculated the cost in Tunisia of producing graduates at different levels, taking into account wastage rates which, he claims, are about average for most poor countries. Taking the cost of a primary school graduate as a base index of 100, Simmons' data show indexes of 1 116 for secondary graduates and 3,753 for university graduates. The cumulative index for a student who has passed through all levels of education to become a university graduate is 7,970. These cost ratios are dropping as enrollments in secondary and higher programs expand Still, inequality occurs when post-primary education is expanded before universal basic education is reached [illegible] political process must debate on the "fairness" of the trade-off [illegible]d

Anoth[illegible]e of the educational system with unclear implications for equ[illegible] proportion of public versus private schooling and the differen[illegible] quality between the two auspices. Social demand for educational accommodations and quality which exceeds the public

resources stimulates the growth of a private sector. This is often encouraged and subsidized by the government, which is aware of its own limitations, and because of belief in the value of education for the development of the country. The problem of public subsidies will be discussed below. It should be noted here that claims have been made for the encouragement of the private sector on the grounds of equity. Thus, Jallade (1974) concludes from his study of the Colombian system: "One way to make sure that education subsidies benefit the poor more than the rich is to foster a private, little subsidized education sector in which the rich can enroll their children. Thus, the rich will receive limited subsidies while they are still paying taxes."

Jallade himself qualifies this conclusion by observing, "If the presence of a strong private education sector may help to achieve equity in the provision of education it may also preserve and, possibly, exaggerate inequalities of economic opportunities in the future." Indeed, experience with education in other countries, and with other social services, leads us to question whether reserving public services for the poor through the encouragement of a private sector is not a self-defeating strategy. The effect of a dual system of provision can be clearly seen in health services, for instance. In countries where there is a strong private sector, and limited government control, there is one standard of service for those who can pay, but a distinctly inferior public one for the poor. Concentration of resources in the private sector flourishes as higher salaries and better working conditions attract the most highly qualified staff. The buying power of the rich will create a strong pressure for specialized, high-cost treatment for the few (Titmus 1958).

Similarly with education, where government controls are weak, different standards of provision are institutionalized by a dual system. This hardly contributes to the ideal of equality of provision. High-status private services are patronized by students from privileged socioeconomic backgrounds. The good quality education and, perhaps more importantly, the credentials which they have acquired, permit them to enjoy higher and more costly levels of education. Eventually they obtain elite positions in society. Meanwhile, high-quality teachers are drawn away from the public sector. Social pressure for improved public educational quality, typically arising from the more vociferous middle and upper classes, is lessened. Once they are not obligated to consume public educational services their interest and support may wane.

The preceding discussion suggests a conflict between the goal of providing the maximum quantity of education, by generating both public and private resources, and encouraging services that exacerbate inequalities of consumption and opportunity between social classes. One strategy to avoid the pitfalls of a dual system is to establish a sliding scale of tuition fees within the public sector (Bhalla 1973), while reducing the private sector to a minimum. Thus the private resources

that social demand can generate would flow into the educational system, without necessarily bringing social segregation. Also, it would be possible for government to maintain a greater measure of control over policies for changing the structure of the system by making more room at the top.

A related question, to be raised in the analysis of the general features of an educational system, asks if the provision of different types of education, especially at post-primary levels, exacerbates inequality by channelling some students into the road to prestigious credentials while others receive lower-level or "terminal" training. The economic rationale behind vocational schools, a common alternative to academic secondary education, has been severely challenged. A classic criticism was Foster's article, "The Vocational School Fallacy in Development Planning" (1966). Foster observed that the most marked inadequacy of these schools "is that they perform relatively ineffectively the basic functions of general education upon which further vocational training can be given with profit." He suggests a greater emphasis on this function of formal schooling, rather than the provision of technical education which is often ineffective and out of touch with future market requirements. No country has done away with vocational schooling in the fifteen years since Foster's observations.

Systems of tracking, and specialized schools or curricula, can constitute a form of inequality, both of treatment and of subsequent opportunities. It would seem important to examine the causes and effects of different forms of provision in the context of each country. Efforts could be made to analyze how far these differences correspond to the real needs of the students and/or of the economy, and how far they are instead covert mechanisms of elite formation and exclusion. Once again, a criterion of social justice might suggest avoiding the unnecessary differentiation — which may institutionalize different "classes" in the educational system — and increasing the provision of basic and comprehensive education.

The year to-year flow rates of students through the educational system can also provide useful clues as to its inequality. A system with high rates of repetition and dropout, especially within educational levels, can be assumed to be highly selective, either explicitly or implicitly. It is recognized that institutionalized selectivity, particularly during the early years of schooling, constitutes a bias against children from less advantaged backgrounds. On the other hand, low retention rates chiefly reflect the handicaps of poverty, malnutrition, lack of support, etc., which influence the school performance of these children. Thus a strategy which minimizes dropout rates — through automatic promotion, for example — will to some extent avoid the inequalities inherent in early selection processes. The results of such a strategy can be seen in Korea, where, according to the data presented by Snodgrass (1974), 94% of children remain in school through the end

of primary school. This may not, of course, end the necessity of instituting some selection processes between levels of schooling. Here inequity can be reduced by reducing class bias in testing and by providing special assistance and support. Discriminatory biases, however, can not be completely eliminated from any selection process.

3.1 *The Distribution of Education Among Classes, Regions, Sexes, Etc.*

Davis (1972) has pointed to three stages in the development of indicators to measure the objectives of educational systems. First, attention was focused on the quantitative aspects of education. Principal indicators were the proportions of school-age populations receiving education, data on the flows and through-put of the system, and quantitative assessment of inputs. In a second stage, attempts were made to quantify indicators of the "quality" of education, including teacher-pupil ratios, classroom sizes, the fit of school outputs to estimated manpower requirements, etc. More recently, the goals of national unity and equality of opportunity have influenced educational targets. There has been an attempt to apply quantitative indicators to assess the distribution of educational services to regional, social, economic, and ethnic groups. Equitable distribution norms are used to plan attainment of social equity goals.

Davis (1972) notes that measures of school output, indicated by achievement testing, would give a further idea of equality of opportunity in terms of the output effects of education. He observes that this would be only a very partial approximation of outcome effects, and also expensive to administer in most LDCs. We shall consider here some studies that have dealt with the initial question of how education is distributed among groups.

To assess the degree of inequality of access to education in Colombia, Jallade (1974), presents data on enrollments by level of family income for both urban and rural sectors. The number of children in the 5-25 age group is calculated for each income bracket, and the percentage enrolled in each is presented. There is a relationship, though not a particularly strong one, between income and enrollment, the enrollment is below 50% for the six lowest income groups and above 60% for the top three. A further sense of the inequality in enrollments is given by the breakdown of the percentages in primary, secondary, and higher education, for each income bracket. For the three lowest income groups, approximately 90% or more of those enrolled are in primary school and less than 0.5% in higher education. For the upper income brackets, the percentages are more equally divided between primary and secondary school, and the percentage in higher education is 8 to 10. Jallade also shows the percentage of children in each bracket attending public and private schools. For the lowest six brackets, only about 10% of primary school children go to private schools, whereas the percentage is over 65% for the highest four brackets.

Snodgrass (1976) studied the enrollment ratios of different age groups in Korea. The educational attainment combined with the head of household's occupational category were used as indicators of socioeconomic class. Curves were plotted to show the differential patterns between the groups.

Similarly, in his study of education in Ethiopia, Kenya, and Tanzania, Ter Weele (1975) calculated Gini coefficients of concentration. He also used the corresponding Lorenz curves of concentration to show inequalities in the distribution of education across regions, by social group, and by economic sector. Snodgrass discusses this method in the following chapter.

Ronald Bucknam (1971), in his study of Chilean middle education, indicates inequality in access to middle education by testing a series of null hypotheses relating access to:

—father's occupational prestige;

—father's educational attainment;

—region;

—urban-rural sectors;

—birth order; and

—sex.

This is done by comparing the way occupations are distributed in the work force and the way occupations are distributed among fathers of middle-school students. The differences in the two distributions are calculated and their significance tested in order to accept or reject a null hypothesis of no difference between groups and therefore no inequality of access. Bucknam concludes that there were at the time of study "significant differences of representation" in the cases of all the variables tested, except that of sex.

In order to examine possible inequalities of treatment within the middle-school population, Bucknam uses the same independent variables, computing the difference between the observed and expected means for participation in academic versus professional schools, public versus private, and type of school by sex. School type attended by sex is used as an indicator for assessing inequality of opportunity resulting from differences in services provided. Significant differences in student representation are found in academic and private schools, associated with father's occupational prestige, father's educational attainment, family economic status, and urban/rural sectors. In general, the findings from this study seem to conform expected inequalities.

3.2 *Differences in Educational Inputs*

Studies of inequalities of educational inputs have often raised doubts

as to what difference the inputs might make in "achievement" terms. Production function analysis using the input-output "factory model" of schooling has led to considerable controversy over which, if any, school inputs are worth worrying about. The variables that have received attention include:

— teacher qualifications and salaries;

— class size;

— number of textbooks per pupil;

— number of hours of schooling;

— time of day of schooling;

— student-teacher ratios, and

— "opportunity to learn" (defined in the IEA studies as coverage of subject matter in the curriculum).

The HIID Liberia study team (1976) examined some of these indicators across regions and demonstrated marked inequalities. The number of textbooks per student and student-teacher ratios are shown for different levels of schooling. The authors note that "differences in the ratios are almost 2.1 for elementary schools, and 2.5:1 for secondary." Differences in teacher qualifications are calculated, using instructional costs per student (assumed to reflect pay scales) as indicators for comparison. In their conclusion, the authors write that "a child living" "upcountry" is much less likely than his cousin in Monrovia to find a school to attend, to have books to study, to share the teacher with few classmates, to have a well-trained teacher, and to have a teacher paid according to his or her qualifications."

The interpretation of input inequalities is certainly open to question. Thorndike (in Purves and Levine, eds., 1975), referring to the IEA studies, observes that "the same indicator may have genuinely different significance in different cultures," adding to the complexity already inherent in measuring cause-and-effect relationships in the educational process.

However, Schiefelbein (1975) holds that the evidence from his research indicates that "school variables make a substantial contribution to explain the total variance in educational achievement." Although it is difficult to draw conclusions from the conflicting results, it is still useful to draw attention to input inequalities between population groups. The attention highlights the differences in the school experiences in which children are participating. The studies also provide data for further analysis of thresholds and standards of provision below which school inputs determine attainment and thus indicate inequality.

3.3 *The Distribution Effects of Educational Financing*

One way of assessing the equity of the educational system has been to look at the direct distributive effects of public expenditures on education. This requires a method to match the groups that pay for education with the groups who receive it, in order to detect any systematic transfers between groups that may not have been explicit.

The assumption here is that, because education is financed publicly to ensure important external effects for society as a whole, methods of financing should promote redistribution of resources in favor of groups who would otherwise lack the resources to educate their children. At very least, the distribution of benefits from education should reflect proportionate contributions to the public coffers. The problem of more advantaged groups reaping disproportionate benefits from public funds, presumably designated to aid the poor, should be corrected.

Vito Tanzi (1976) discusses the chief sources of taxation for education in LDCs in terms of their general progressive or regressive effects. Earmarked taxes, often used to finance technical education, are not usually progressive in nature. When levied on an industry's payroll, the tax tends to be passed on by manufacturers to the consumer. This results in the provision of a subsidy from the consumer to the worker, who in LDCs forms part of a relatively privileged group; that is, those who work in a primary labor market job in a modern sector industry. Similarly, when sales taxes are used in some countries to finance university education, this in fact constitutes a subsidy from the poorer, who are proportionately harder hit by indirect taxation mechanisms, to the richer, who are more likely to receive higher education. Tanzi notes that there are a few cases of using property taxes, or taxes on profits, for education. These have a more progressive effect, provided that they contribute to the general pool of resources used for education.

The redistributive effects of financing education from general direct taxation is limited by the degree of progressiveness that characterizes the overall tax system. In this connection, Tanzi presents the conclusion, reached by Bird and De Wulf (1973) from studies of Latin America that these tax systems "have done little to correct inequality". There seems to be a "wandering proportionality" that describes the relationship between income and percentage of tax paid in these countries. The average tax paid by the highest income groups does tend to be proportionately higher, but, in general, taxation systems in Latin America do not seem to have significant effects on income redistribution. If Tanzi's studies of specific taxation and funding practices can be generalized it would appear that equality is not promoted by patterns of public educational financing in developing countries.

Tanzi also mentions the regressive effects of the tax allowances for educational expenditures that exist in several Latin American countries. Such allowances are of most benefit to those who pay higher tax

rates and are therefore by definition an educational subsidy for richer groups.

Jallade (1974) makes a detailed study of educational expenditures and income distribution in Colombia. First, he analyzes the different sources of government financing, classified by central government, departments, and municipalities. Although Jallade does not study finance in detail, he notes that since "it is very unlikely that these three fiscal systems have the same degree of progressivity," there are implications for equity to be drawn from the balance of financing between governmental levels

In order to assess the redistributive impact, on various income groups, of public expenditures on education, Jallade uses the following methodology:

- The distribution of the tax burden among specified income groups is determined
- Education subsidies are allocated among specified income groups
- The ratios of subsidies received over taxes paid are computed for each income group.

In calculating the taxes paid by each income group, the author takes into account personal and corporation income taxes, coffee export taxes, property taxes, and indirect taxes on consumption goods. Rates are computed separately for urban and rural areas Since it is not possible to allocate the burden of certain taxes — corporation tax, for example, which may be borne by Colombian shareholders, consumers, or foreign shareholders in some unknown proportion — the allocation of taxes among income groups is calculated according to two alternative assumptions of minimum and maximum progressivity Under both alternatives, the incidence of the tax system is proportionate to income, except for the top 5% of the population which pays a higher average tax rate

In order to assess the distribution of benefits from educational expenditures, enrollments are considered by income groups, differentiated by level of education and by type of school (public or private) Jallade's results show that public subsidies for education are in fact higher for the lower income groups, and constitute a higher percentage of the taxes paid by these groups This arises partly from the use by middle and upper income groups of private educational facilities But, Jallade concludes, "while the positive redistribution of income that takes place through the public financing of education is accentuated by the presence of the private education sector, it is not entirely attributable to it "

When the public subsidies are broken down by levels of education, however, the pattern of redistribution is shown to be more complex. While the redistribution effect is strongly favorable to the poorest 40%

of families for primary education, the main beneficiaries for secondary education are the middle-income groups, which are therefore subsidized by both the poorest and richest income groups. A similar situation is shown for higher education. In addition, 80% of the families in the groups that most benefit from spending on secondary education live in the urban sector.

Surjit Bhalla (1973) discusses the general question of the utility of studies of educational financing and raises the question: "If interest is in the issue of income redistribution through government policies, then shouldn't attention be concentrated on the net effect of all policies, rather than just one sector?" He offers two arguments in answer to this. First, the educational budget in LDCs is usually a sizable proportion of total public expenditures and, therefore, its effect on distribution is important per se. Second, since education is an investment for the future as well as a service consumed today, Bhalla affirms, "If the education sector is found to be regressive, than it might be reasonable to conclude that not only are the poor subsidizing the rich of today, but also helping them to stay rich tomorrow. A study of the static redistributive effects is, therefore, useful for considerations of equal opportunity, mobility and equity."

Taking a special case of the consequences of public financing, Psacharopoulos (1976) discusses the equity effects of providing free university education in LDCs. He suggests four ways to approach the problem:

- By assessing the effects of education on the dispersion of incomes. Marin and Psacharolpoulos (1976) effected such a study for Mexico, concluding that "giving primary education to 10 percent of Mexican illiterates would *reduce* a measure of income inequality (the variance of the logarithm of earnings in this case) by 5 percent. On the contrary, giving higher education to 5 percent of those without it would *increase* income dispersion by 2 percent."
- By comparing tax contributions and educational benefits, as in the Jallade study.
- By studying the social background of the students in higher education, to show effective access patterns.
- By looking at the selectivity of the educational system, "on the theory that the more selective the system, the more it will favor students from high income families."

The conclusions of the paper are that public provision of free higher education fosters undue demand for it, and is (a) inequitable because of selection mechanisms, (b) inefficient (according to rate of return calculations), and (c) generates unemployment among rejected secondary-school graduates.

Another aspect of public financing of education that has received at-

tention is its redistributive effect among regions. Jallade addressed this question for Colombia, first calculating the incidence of taxation by department. The distribution of central government transfers to each department is then presented. This shows transfers as a proportion of total departmental revenues, transfers for education, and transfers for education as a proportion of total departmental revenue. In 1967, approximately 90% of central government transfers to the departments were earmarked for educational expenditures.

In comparing tax burden with transfers to departments, Jallade finds that "a certain amount of redistribution is going on." The four richest departments receive only 42.2% of transfers while contributing 75.5% of taxes. This effect seems to indicate some effort at reducing inequalities of provision that would otherwise exist if departments were to provide educational services wholly from their own resources.

Ter Weele, in his study of East Africa, draws very different conclusions from his findings in this context. His preoccupation is that the distribution of education across provinces may be more inequitable than the distribution of income. Thus any transfer of funds for education, he concludes, may increase inequalities rather than reduce them. In order to examine and compare the distributions of income and education, the author traces curves of concentration for (a) income by province, (b) enrollment by province, and (c) the distribution of education as a function of the income of each province. The analysis is summarized by calculating the corresponding Gini coefficients for the compared distributions. Ter Weele finds that the poorer regions are in fact subsidizing the richer.

From this line of reasoning the author speculates that the projects under-taken in education will be of a more equitable nature if funded by more local sources, thus avoiding the regressive transfers across regions. In this connection, Ter Weele remarks that "the theory that decentralized sources of money produce more equitable distributions is, of course, the other side of the theory that taxation without representation leads to uses of funds which will benefit only a few."

In general, the studies of the distributive effect of educational financing point to the conclusion that the education sector largely reflects the over-all trends of concentration and redistribution in a given society. Educational financing is inextricably linked to the general tax structure, which, in turn, cannot be divorced from the conflicts of political decision-making. Conflicts between competing political interests and values are played out, through action or inertia.

Thus Bhagwati (1973), who concludes that educational subsidies usually reflect the class structure, writes: "The benefits can be handed out to elite groups by the state without obvious disaffection if they are handled via the educational system which, in principle, at least, is open to all classes and castes and, therefore, conceals effectively its inegalitarian impact."

3.4 *The Effects on Equality of Nonformal Education*

Arguments that question the egalitarian effect of formal education systems have been alluded to throughout this paper. Several critics have suggested that formal education: (a) serves as a mechanism to allocate public funds unequally and unfairly; (b) serves to distribute present and future opportunity unfairly; and (c) serves to reproduce the unequal socioeconomic relations that exist in a given society. Bowles sums up the Marxian view, stating; "Educational inequality and inequality of income are both reflections of the class structure of capitalist societies. I infer from this that changes in educational policy which do not alter the class structure will have relatively little effect on the distribution of income."

In their recent love affair with nonformal education, educators and their critics have hoped that out-of-school education would provide a flexible and efficient complement or even substitute for formal education. Suggestions have also been made that nonformal education might avoid the evils of inequality that have plagued formal education. The financing of nonformal education, for instance, would appear to be progressive in nature. Programs are clearly directed to the less privileged, thus reversing the trends in formal education which appear to subsidize the middle and upper classes, who are the major consumers of post-primary services.

It is often claimed that nonformal education is cheaper than formal (Coombs and Ahmed 1974), adding another argument for its relative equity. Formal schooling, especially at the upper levels, concentrates scarce resources on a few students, whereas in nonformal services the benefits of access can be distributed more evenly. The opportunity cost of providing education for one recipient, when it means denial to other potential students, is less. Others have drawn attention to the narrowing of inequalities of access among age-groups that nonformal education can effect. Those who have received the least educational investment are often adult groups, who are normally excluded entirely from formal education, but may participate in nonformal.

Using some of these arguments, Ter Weele advocates a shift of resources to nonformal education in East Africa in order to establish greater educational equity. He describes nonformal education as "inherently an equalizing form of education, providing many people with some learning, rather than a few persons with 6 or 12 or 16 years of schooling." He suggests that the allocation of funds to primary education — a recommendation for increased equity that is often put forward for LDCs — may not be politically possible in many countries. An increase in the number of primary school graduates is bound to produce greater social demand for higher levels of education, given that primary school is commonly viewed as only the first step on the ladder to mobility through education. With primary school pouring out graduates it is difficult to hold down post-primary allocations. Invest-

ment in nonformal education, however, in Ter Weele's opinion, would not lead to similar pressures for expanding higher levels of education.

Despite the above rationale, several authors have urged a closer look at the impact of nonformal programs. La Belle and Verhine (1975) come to a similar conclusion with respect to nonformal education as others have about formal educational systems; "Our hypothesis is that unless there are con-commitant changes in the values and institutions associated with a society's occupational stratification process, nonformal education cannot achieve its long-term goal of greater social and economic quality."

The authors argue that the belief that (job-related) nonformal education can increase equality of life-chances is based on the fallacy, applied to education in general, that inequalities in income are caused by inequalities in skills and knowledge. It is noted that, while evidence shows that occupational attainment is related to educational achievement, the increase in levels of education in LDCs, has often produced an inflation of credentials, leaving the relative position of each level little altered.

La Belle and Verhine put forward the "status-conflict theory" of the role of education in society. This emphasizes schooling as a means of socialization and elite formation, indicating that "skill attainment is not the central ingredient in the occupational stratification process." Inequalities in the workforce are based rather on academic credentials, accepted and considered relevant by employers as "symbols of an elite-oriented and dominated socialization process". The authors conclude from this reasoning: "As non-sanctioned efforts directed at non-elite groups, nonformal education programs are incapable of validating or legitimatizing their experiences. As demands for attainment through the formal system escalate, such programs appear destined to remain at the bottom of the educational status hierarchy."

Colclough and Hallak (1976) analyze the effect on equality of establishing basic education programs in rural areas. These have been suggested to remedy the situation of costly and irrelevant primary education from which much of the rural population in LDCs is, in practice, excluded. The authors point out that, while nonformal basic education may indeed avoid some of the inequities perpetuated by formal school systems, the very fact of instituting a parallel program would mean creating a dual system, with inherent negative effects for equality. A dual system, in the opinion of the authors, would "merely institutionalize present inequalities." Thus, a basic education program running alongside primary education would clearly divide the school-age population into those with access to formal schooling and, therefore, to post-primary education and higher lifetime earnings, and those without access. The prospect of second-class terminal service is offered to the latter group.

The authors discuss the case of Rural Education Centers (REC) in Upper Volta. These centers offered a vocationally oriented program to

rural youth. The plan was to channel resources available for education to the REC, and halt the expansion of formal primary schooling. The parents of youth in rural areas, however, did not perceive the centers as meeting the needs that they wished fulfilled through education. These needs were based on aspirations for social mobility, correctly associated in the minds of parents with formal schooling. Thus, the RECs, forming a dual system, were perceived as discriminatory, as channeling rural children away from valued rewards. Attempts were actually made to convert RECs into conventional primary schools.

Colclough and Hallak conclude that, in order for nonformal, vocationally oriented education to have a positive effect on equality, it must become part of the mainstream of services to be received by all. This would require a radical reform of most formal education systems and goes far beyond the idea of simply offering some alternative to children not reached now by the system.

One conclusion to be drawn from the above analyses is that nonformal education cannot be judged in isolation as to its effects on equality. Its impact must be assessed in the context of the interrelationships not only between educational services of different types but also between these services and the occupational structure and reward patterns in a given society.

In addition, as is the case with formal education, nonformal education may have differing effects, depending on what type of equality is being considered. In the sense that it is directed to non-elite groups, there is some redistributive effect from the allocation of public funds to nonformal education However, the equity of providing some service to those who might otherwise do without must be balanced against the possible effects of institutionalizing inequalities that already exist. Inequality may even be exacerbated by causing the boundaries between groups to become more rigidly defined

As far as equality of opportunity is concerned, nonformal education may offer a route to individual social mobility in cases where it is recognized by employers as relevant experience for selection into the occupational structure However, if only the credentials from the formal educational system are valued, graduates from nonformal programs may continue to be handicapped in the competition for jobs. It seems unlikely then, that nonformal education can, by itself, have much effect on overall socioeconomic inequalities — a statement that would seem valid also for formal education. Combined with other measures, both forms of education may either reduce or exacerbate some forms of equality of access and opportunity

3.5 *The Effects of Education on the Equality of Income Distribution*

Finally in this overview of education and equality, we must examine the view, supported by conventional wisdom, that the more equal spread of educational services fosters greater equality of income. This

belief arises partly from the observation of historical trends in a variety of countries. In some countries, and after some setbacks and time, income has become more equally distributed. It can also be seen that the provision of education has increased along with growth and moderernization. The common-sense connection between the educational level of individuals and their earning power has led to an inference of causality from these evident associations.

Following this argument, James Coleman (1973) suggested that this notion of causality could be tested by studying how the relationships of income and educational attainment vary over time. He presents data for the United States over the period 1929 to 1970, noting declines in both these indicators of inequality. In conclusion, Coleman affirms that: "Though other explanations could be offered, they (the declines in inequality indicated by trends . . . presented) suggest that increasing equality of education does have a strong effect on increasing equality of income."

Similarly, belief in the effect of education on income distribution was taken up and given considerable support by the work of human capital theorists. Rate-of-return analyses of education, undertaken within the framework of human capital theory, confirmed that, for individuals, earnings are closely related (affected?) by the amount of education received. Since prior educational investment was in fact put forward as the basic source of differences in earnings, it followed that equalizing investment in human capital would result in the equalizing of incomes. Bhalla, in his discussion of human capital theory, points to some studies that support this position. Chiswick (1973), for example, in seeking to explain regional differences in income dispersion in the United States and Canada found that about 60% of the differences in income inequality could be explained by differences in the average rate-of-return associated with unequal attainment of schooling. Chiswick (1969) also used the human capital model to study the effect of minimum school legislation laws on income distribution, concluding that the legislation may lead to an increase in the level, but a decrease in the variance (spread) of both schooling and income.

An associated idea, arising from the rate-of-return approach to measuring educational effects on income, is that inequalities of distribution can be manipulated by policy makers through human capital investment decisions. Thus, if rates-of-return to secondary or higher education are excessive, causing a worsening of income inequality, measures can be taken to increase the supply of educated workers at these levels. Assuming that occupational rewards are regulated by something approaching a market situation, the increased supply of highly educated labor would cause lower wages. Consequently, inequalities would be reduced in rates of return between groups of differing education. Over-all income distribution would thus be made more equal. Clearly this conclusion is based on an acceptance of the assumptions underlying rate-of-return analysis, e.g. that education

does affect labor productivity and that wages reflect labor's marginal product. This has been discussed in Chapter 5.

Bhalla discusses various challenges to the models used in arriving at the conclusion that equalizing education will cause the reduction of income inequality. He also mentions studies by Carnoy (1973) on the Unites States, Brazil, and Mexico, and Hollister (1971) that have found evidence that runs contrary to the supposed education-income link. He therefore affirms that no clear conclusion can be reached, and that the general relationship of the two distributions is still unclear. As a comment on the state-of-the-art of research in this area, Bhalla points out that, "on the other hand, it should be noted that even if education was having an equalizing effect, the available data may not show it. Education, it should be remembered, is only one factor, albeit an important one, in the determination of a person's income."

Adelman and Morris (1973) identify the rate of improvement in human resources as one of the "six most important variables associated with inter-country differences in patterns of income distribution" in LDCs They also write that "increased access to the acquisition of middle-level skill and professional training appears, from our results, to be quite predictable in equalizing effects on the income distribution "

Similarly, Ahluwalia (1976) includes lack of education as one of the determinants of inequality He draws this conclusion from analyses that tested the influence of enrollment rates on income shares, finding that "education is positively related to equality in terms of income shares of the lowest and middle group " The authors then qualify these findings, however, stressing the complexity of interpretation. Adelman and Morris make the following observation: "At the intermediate and "high" levels of development, strategies stressing human resources promote greater income equality, whereas those based on the exploitation of natural resources or capital-intensive industrialization tend to shift the income distribution against the lower income groups The poor benefit not from the expansion of educational systems as such, but from a combination of educational improvements and expanding employment opportunities."

Ahluwalia points out that education can be used as a policy instrument to effect changes in distribution patterns, but he notes the difficulty of inference based on correlational methods He states: "The causal relationship (between education and equality) may well run in the opposite direction -- but the observed association clearly calls for further investigation "

No assurance can be offered that increased provision of education and increased equality in the distribution of schooling will necessarily lead to changes towards a more equal society Reliable general models to describe the relationship between education and society as a whole have not been discovered Research in the field seems rather to be in

the process of uncovering an ever wider range of variables that influence the education-equality issue.

4.0 *Conclusion*

A word used throughout this chapter has been "complexity." Indeed this seems to be the most salient characteristic of the issue considered. All that can be said with near certainty is that there is a strong relationship between educational attainment, earnings, and income. In nations and regions where there is inequality in the distribution of education, there is very often inequality in the distribution of income. Individuals with more education usually have higher earnings and income than individuals with less education. Nations and regions with more education usually have higher incomes than nations and regions where education levels are lower. But the causal linkage between education and income is not demonstrable, in terms of education being an effective instrument for increasing either productivity, or equality of income. Too many other variables are in play in any given socioeconomic context. Hence, the policy planner can never be certain that increasing education will lead to increased production and income, or that increased equality in the distribution of education will lead to increased equality in the distribution of income. Educational levels may serve as indicators of production and equality to come but not as manipulable policy planning instruments.

No clear conclusion has been reached from the research and arguments presented. Hence, no attempt is made to formulate prescriptions for policy making and planning. Persuasive justification for this approach is formulated by Albert Hirschman (1970) in his article entitled, "The Search for Paradigms as a Hindrance to Understanding." Martin Rein (1976) has described the paradigms that underlie policy making as a "curious mixture of psychological assumptions, scientific concepts, value commitments, social aspirations, personal beliefs, and administrative constraints . . . encompassing various contradictions rather than seeking to eliminate them." This review is an attempt to clarify some of these elements as they affect current thinking on equality of education in development. A range of contradictory and complementary definitions, policies, and consequences has been considered. The hope is that useful reference to them can be made in the light of the particular circumstances and forces that operate in each, necessarily different, policy-making setting.

CHAPTER 9

The Distribution of Schooling and the Distribution of Income

DONALD R. SNODGRASS

1.0 *Definition of the Problem*

So much importance is attached to education as a means of individual and societal development in all countries that interest in the equity of the school process has become paramount for planners. Equity, in the provision of education, means different things. Several measures of equity are possible. One relates to equal provision of inputs into the system. Another to equal access to educational opportunity — the opportunity to attend school. Yet a third means equality of educational outcomes, an issue discussed in Chapter 8. All of these measures are valid. The different measures can support different judgments on the equity of a system and different plans for improving it. Planners may have to work with any or all of these equity concepts.

Here attention centers on one particular equity outcome of education, the effect of education on the distribution of earned incomes. An educational system is equitable if it works to narrow over-all inequality in the distribution of earned incomes. According to one acceptable measure of over-all inequality, this means improving the relative and absolute incomes of the lowest groups in the population.

This simplifies one problem and creates another. How, in fact, do we determine the effect of education on the distribution of earnings? There are contending theories on the matter. The plan of this chapter is to review and reduce theories of education and income distribution to two main components: first, the distribution of education itself and, second, the effects of education upon the earnings of its recipients. Next, we will present a new set of findings on the distribution of schooling. We then will speculate, on the basis of other research findings, about the effects of education on the incomes of various kinds of recipients. Finally, some conclusions and policy implications will be drawn for planners.

2.0 *Education and Income Distribution in Human Capital Theory*

Neoclassical economists in development planning analyze education

and income distribution, using the human capital model. In Chapters 4 and 5 neoclassical economic approaches were illustrated in the application of rate-of-return and manpower requirements analysis to educational planning. Rate-of-return analysis treats education as a productive investment which improves work performance and productivity. Underlying the rate-of-return approach to education is the notion that education increases the marginal product of educated workers. This is demonstrated in part by the statistical artifact that more educated workers earn more than less educated workers. The earnings difference in favor of educated workers is presumably a reflection of increased marginal product. Further evidence is suggested in the aggregate case where national growth is attributed to varying factors, and there is some part of the growth that analysts feel must be attributed to education broadly conceived. The exact way in which education contributes to marginal product, such as increased earnings and return on investment, is not shown explicitly in any of the rate-of-return studies or the models used to analyze the relationship. The proposition that education contributes to product and increased earnings is plausible in common-sense terms to planners, even though the theory and analytic methods are open to justifiable criticism by opposing economists. As proposed by Schultz (1961) and developed by Becker (1964; 1967), Mincer (1962) and others, human capital theory treats education as a productive asset strictly analogous to physical capital. That is, it is produced through a process of saving and investing, and then sold in a competitive market in which its rate of return is a function of its marginal productivity. The productivity of human capital, resulting from both general and specialized forms of education, is presumed to be a function both of the inherent quality of the asset and of its supply relative to the supply of competing and complementary factors of production.

One important implication of human capital theory is straight forward. Other things being equal, the distribution of income will become more equitable if the distribution of the productive asset (indirectly education) is improved. Becker (1967) also develops the case in which other things are not equal, in the sense that differences in tastes and abilities also influence the distribution of income. Just as land reforms and other asset redistributions will lead to a more equal income distribution, so, the theory argues, will a redistribution of human capital. In political terms, this is a conclusion which is acceptable to conservatives, as well as liberals. Unlike land and other physical assets, educational attainment cannot be taken away from those who have it. The only way that the distribution of human capital can be altered is by supplying more to those who do not now have it. We can talk about *redistribution with growth*, or *dynamic redistribution*, as an alternative to *static redistribution* of physical assets (Chenery, et al. 1974). When it comes to human capital the only way to redistribute it is to provide more of it.

Human capital theory holds that the provision of additional education — when the expansion works in such a way as to equalize the overall distribution of education — will lead to improvement in the distribution of labor incomes. Rate of return to human capital will generally be reduced as its supply expands. Earnings differences narrow between the schooled and the unschooled; more have education, which was once scarce, and are rewarded accordingly.

Human capital theory has been subjected to numerous criticisms and objections (Shaffer 1961; Bowen 1964). Major points made by the critics were that the theory ignores the noneconomic benefits of education and assumes the existence of competitive labor markets. The theory is vague about just how education makes people more productive and exaggerates the importance of formal education relative to nonformal education. Empirical applications undereinphasize differences in educational content and methods while overplaying years of schooling, which are easy to measure.

Additional objections may be raised to the use of the theory as a planning tool. Human capital theory addresses only a few of the questions which are important for educational planning and gives only partial answers to those which it does address. One might wonder what planning purpose is served in the situation where rate-of-return analysis indicates a greater payoff for secondary education over primary. The planner cannot recommend limiting allocations to secondary. Nor is anything different if the opposite is indicated, namely, that primary has a greater return than secondary. Rarely is the planner interested in such sweeping issues as the payoff of one entire educational level compared to another, or of one field of professional training over another. All levels and fields are usually necessary in some strength.

Rate-of-return analysis is rarely applied to true educational alternatives; usually it is applied to complements. Even when choices relate to large alternative possibilities, there isn't much the planner, policy maker, or manager can do about recasting an entire systems structure. The point was made in Chapter 5 that rate of return is generally valuable in raising large issues for policy planning and not for guiding policy formulation and program design. Also rate of return and cost-benefit analysis, over and above filling the pages of economics of education literature, can serve to complement and support other planning approaches, such as manpower analysis and cost-effectiveness analysis.

Not all criticisms of human capital theory bear on its usefulness in explaining the relationship between education and income distribution. Here the issue is not about benefits of education which are not reflected in earned incomes. The central question is whether or not education raises incomes, and, if so, how.

The answer provided by human capital theory, of course, is that education does raise incomes and that it does so by producing more

productive workers whose higher productivity is rewarded in competitive labor markets. This assertion is subject to challenge on two grounds. Education may not, in fact, raise incomes People with more education may earn higher incomes, but not because of any effect of the educational process. They differ from people who have less education in ways which led them both to get more education and to earn higher incomes. Another contention is that labor markets are not competitive. The more highly educated may earn higher incomes, even with other relevant characteristics held equal. The reason for this is not competitive labor markets rewarding their higher productivity but social networks rewarding their members. We will discuss each of these contentions

The earliest calculations of rates of return to investment in human capital assumed that the entire income differential associated with a given marginal educational attainment was attributable to the type of education in question This assumption, which led to high measured rates of return, was challenged early Thereafter, analysts most commonly assumed that an arbitrary fraction of the observed income differential could be regarded as causally attributable to education

In the Third World setting, Thias and Carnoy (1972) estimated that education appeared to be causally responsible for about 70% of the income differential associated with marginally greater educational attainment in the Kenyan case. This generalization is based on income differentials adjusted for differences in socioeconomic origin (parents' literacy, tribe, and father's occupation). On average, the adjusted differential was 72% of the unadjusted differential. Leonor (1977) recently found wide disparities in educational participation for different income, social and regional groups in Sri Lanka, Thailand, and the Philippines Currently available evidence indicates that education does raise earned incomes The raise, however, is much less than the earnings differentials between more educated and less educated people. The analyst in any particular country must, therefore, try to determine the approximate fraction of the differential attributable to education.

We now turn to the question of how education affects income, to the extent that it does so. Thurow and Lucas (1972) suggest that the labor market is not competitive and homogenous but fragmented, perhaps dualistic. The government and large firms of the modern sector or primary labor market pay relatively high wages, and maintain a queue of job applicants, from which they fill vacancies on the basis of job market signals (Arrow 1972, Spence 1975). The informal, or secondary, labor market is likely to be more competitive.

The policy implications of these alternative models are different from those of the human capital model In the alternative view, the distribution of earnings is more a function of technology and social structure than of the distribution of education Government policies can affect the earnings distribution more effectively through direct in-

come and employment policies. The process, by which education influences income, has two components; first, the pattern of distribution of education itself and, second, the differential effects of education on the incomes of various recipients We can examine how each of these components operates and then ask how they interact to produce education's over-all effect on income.

3.0 *Selection Effects and the Size Distribution of Schooling*

Two important dimensions of the distribution of education can be defined: the size *selection process* and the *size distribution* The first of these refers to how much education is provided and how widely it is shared. The second refers to who, specifically, receives the education which is provided, and who is excluded

To depict the size distribution of education, analysts and planners use the educational pyramid The pyramid displays enrollment ratios for successive age cohorts, usually separately for each sex The pyramid may be broad based, or narrow-based It will depend on how widespread primary schooling has become The higher tiers of the pyramid narrow sharply, or more gradually, depending on the effects of selection on secondary and tertiary enrollments

3.1 *The Selection Effect*

The first possibility is to make no selection at all, and to provide schooling universally to the age cohort Therefore, if everyone receives an equal amount of schooling the question of how education is distributed disappears, although questions on the effects of schooling may remain. As a particular type of schooling comes closer to universality, the question of how education is distributed loses its importance.

The second possibility is to select students for continuation to higher levels on the basis of internal system performance criteria Selection is made according to a measure of performance which is allegedly dependent solely on performance within the school system Two such performance measures are widely used, first, performance at the prior level of schooling, i.e., satisfactory completion of that level, plus, in some instances grades, second, performance on a standardized, usually national, examination

A third criterion is the willingness and ability to pay Some economic costs are associated with every type of schooling These are direct costs and indirect costs Direct costs include both fees and other out-of-pocket expenditures (on transportation, clothing, food, books, and other school materials) Indirect costs are the earnings foregone. When enrolled in school the student must give up income which he/she could otherwise earn Direct and indirect costs to students and their families increase at higher levels of schooling Families have varying

ability and willingness to bear these private costs of schooling. Levying significant costs on students and their families can, therefore, be an important selection criterion.

A fourth possibility is selection by ascriptive characteristics. In the past this type of selection was more common, as, for example, when elite schools were reserved for children of hereditary aristocrats, or when secondary schools were provided only in urban areas, thus effectively excluding most people of rural origins. Two examples still occur, and planners must deal with them One is ethnic sponsorship or affirmative action. A group is given special consideration or assistance based on past discrimination or social disadvantage A second example is the practice by some Marxist governments of limiting access to certain kinds of schooling to students from proletarian backgrounds.

Actual selection systems may rely upon combinations of the four selection criteria Systems differ in the application of one criterion relative to another Some systems impose intermediate tests of performance and require students to repeat or drop out if they are not progressing satisfactorily Other systems follow a pattern of automatic promotion. In drawing a distinction between selection criteria and the results of the selection process, analysts may separate the explicit intent behind the selection process from the actual outcome of the process.

The results of the selection process are reflected in differences based on characteristics such as sex, race, social class, linguistic group, religion, urban versus rural residence, region of the country Results are observable if data or differential enrollment in, or completion of, different levels of the system are available by groups If enrollment or completion ratios differ little among sexes, races, social classes, then the results of the selection process may be relatively unbiased If, as is more common, significant differences can be observed, then this outcome may well be attributable to the differential effects of the selection criteria. The effects of selection are reflected in the size distribution of schooling.

4.0 *The Size Distribution of Schooling*

Empirical research generally assesses the size distribution of schooling, or formal education Before we can talk about how schooling is distributed, we must determine how the amount of schooling can be measured There are four possibilities, each with its advantages and disadvantages

(1) *Years of schooling* This measure has the computational advantage of being a continuously divisible time series But it also has at least three major disadvantages

— It counts *all* years of schooling as of equal educational value,

thus including years in which grades were repeated.

— It takes no account of the educator's opinion that learning is more closely related to completion of defined multiyear units of schooling (for example, five or six years of basic education) than to number of years in school *per se*.

— It also takes no account of quality differences in schooling, in terms of number of days attended, hours in the school day, inputs provided, and other measures.

(2) *Levels of schooling completed.* This measure has the opposite advantages and disadvantages of the preceding one. It takes care of the first two objections, but provides a discontinuous time series which is not always comparable across countries. (For example, first level education can vary from 4 to 10 years in different countries.) In the educator's opinion, completion of defined blocs of schooling is important and yet is ignored.

(3) The third possibility is to measure the quantity of schooling in terms of what students know. The IEA (International Educational Achievement 1975) study indicates that equal amounts of schooling are not equal in terms of what students know. Given amounts of schooling lead to varying levels of knowledge in different countries. Levels are generally lower in poorer countries. Measuring knowledge, usually cognitive achievement, requires a considerable test development effort, as the IEA study demonstrated. The tests used in the El Salvador Sector Analysis also demonstrated this (El Salvador 1977).

(4) *Expenditures.* Carnoy (1975) has argued that the distribution of expenditures on education should be used in analyses of the relationship between education and income distribution, rather than the distribution of years of education. Since cost per student/year rises at higher levels of schooling, this distribution will show a higher level of distributive inequality then years of schooling. The lack of standardized data on private costs, either direct or indirect, makes this measure hard to use in a comparative analysis.

For comparative empirical work, one must use a measure which resembles (1) or (2). This will show a more equal distribution of schooling than (3) or (4).

In the present study, we have adopted a compromise measure which combines elements of (1) and (2). The source of the data is the three most recent editions of the *UNESCO Yearbook* (UNESCO 1974, 1975, 1976). These data are converted into rough estimates of years of effective (i.e. excluding repeats) schooling attained.

We concentrated on two age cohorts: the population ages 25-34 and the population ages 25 or over. The schooling received by the popula-

tion aged 25+ represents the accumulated schooling experience of the society over a longer period.

For each of these populations, we calculated mean years of schooling and three measures of the distribution of years of schooling. One of the distributional measures is the Gini coefficient. The Gini coefficient is a widely used measure of the degree of over-all inequality in the distribution of income, wealth, education, or other quantities. The coefficient shows how the actual distribution of a quantity (e.g. education) in a population differs from an ideally equal distribution. Under perfect equality, 40% of the population should have 40% of the income, but in an actual population the lower 40% may have only 20% of the income and the highest 10% of the population may have 30% of the income. The Gini coefficient has a theoretical range of variation from zero (perfect equality) to one (perfect inequality), although in actual calculations the coefficient usually ranges between .3 and .7. The calculation of the ratio is explained and illustrated in the Appendix.

The following conclusions emerge from analyses of the UNESCO yearbook data:

— *Countries vary widely in terms of inequality in the distribution of schooling.* Although the theoretical range of variation in the Gini coefficient is from zero to one, measured coefficients describing income distributions rarely fall outside the range of .2 to .8. By contrast, our values for the distribution of schooling fall along the entire range. There are several observations of less than .1, and many of less than .2. At the other end of the range, there are many observations of .9, and some observations would come much closer to the maximum value of 1.0 if our estimation technique permitted. For the share accruing to the lowest four deciles, the range of variation is from zero (many cases) to from 25% to 35% of the total (fairly unusual). For the share going to the highest decile, the range is from less than 20% (unusual) to 100% (also unusual). Some illustrative values of these measures are shown in Table 9.1.

— *There is a strong negative relationship between inequality (measured by the Gini coefficient) and mean years of schooling (average number of years of schooling of the population).* This was revealed in a regression analysis of mean years of schooling against the Gini coefficient for the sample of countries. Instead of citing details of the regression results here, see Figure 9.1, in which the relationship is clearly shown as strong and negative. The closeness of the relationship between inequality in distribution and low average amount of schooling in the population is somewhat surprising. In theory, a variety of distribution patterns might be found with the same average years of schooling in the population. Even the negative direction of the relationship may come as a surprise, since some scholars (Boudon 1974) have argued that increasing amounts of education are associated with widening, not narrowing, social inequality. Yet the data are unequivocal; the negative relationship between amount of schooling and

Table 9 1
Illustrative Values of Inequality Measures

Country	Years	Population ages 25 - 34			Population ages 25+		
		Gini coefficient	Share of lowest 4 deciles (%)	Share of highest decile (%)	Gini coefficient	Share of lowest 4 deciles (%)	Share of highest decile (%)
Kenya	1962	.738	0	46 8	805	0	60.5
	1969	.673	0	37 2	793	0	57.4
Canada	1951	219	25.3	18.3	.259	23.4	19.5
	1961	.205	26.0	16 8	.254	23.2	18.8
Costa Rica	1963	.399	16.4	28.7	.419	15.2	29.4
	1973	380	16.8	26 5	.413	16.1	29.9
Venezuela	1950	.579	0	36.6	.629	0	40.4
	1961	523	2.0	30 6	.611	0	35.5
India	1951	.774	0	56.0	798	0	61.1
	1971	697	0	49.9	.780	0	55.4
Japan	1960	.202	12.9	18.2	252	24.3	20.1
	1970	.221	26.5	18.8	226	26 1	19.3
Czechoslovakia	1961	.099	25.7	14.1	090	34.9	13.9
	1970	095	34.4	13.7	.107	33.1	13.5
France	1954	.256	21.6	22.0	265	22.4	22.8
	1962	276	22.4	24.9	273	24 5	24.9

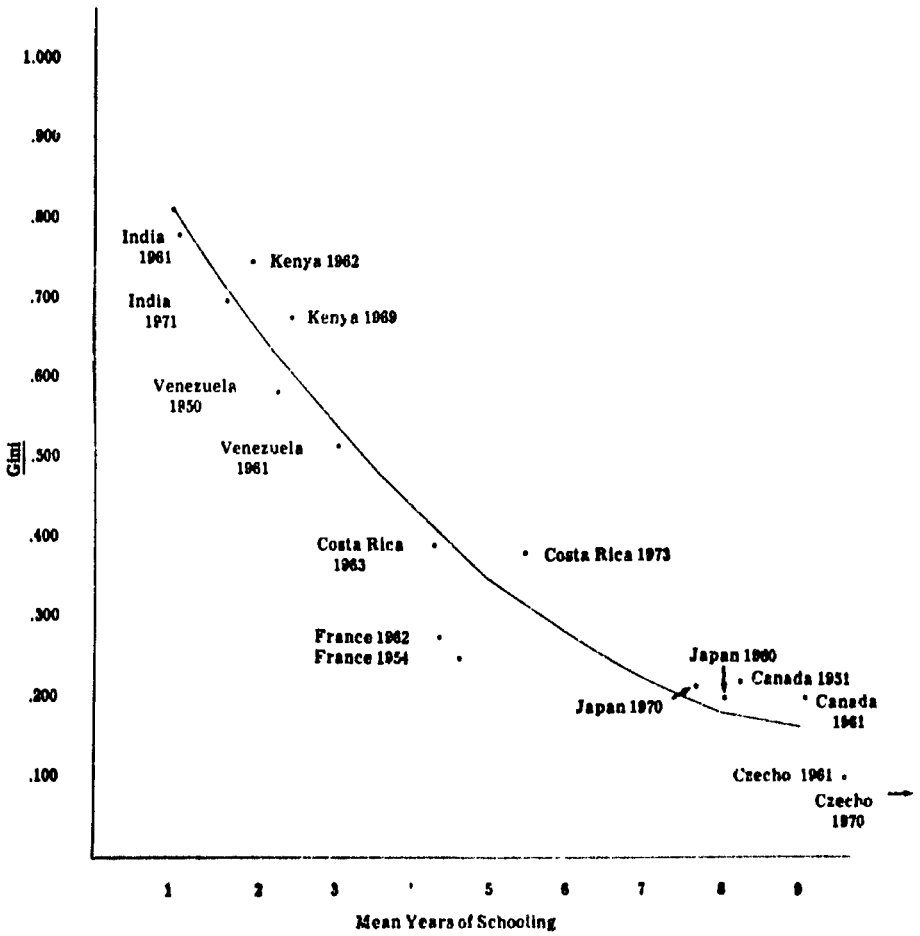


Figure 9 1
Plot of Gini Coefficient Values for Population Aged 25-34, with Illustrative Observations

the inequality of it distribution is graphically shown in Figure 9.1. This leaves two questions for investigation: first, what determines the amount of school a society provides? second, what factors contribute to deviations from the relationship between mean years of schooling and the distribution of schooling?

— *Mean years of schooling are loosely related to GNP per head.* Past studies (Bowman and Anderson 1963; Harbison and Myers 1964; Peaslee 1969) have examined the relationship between educational attainment and GNP per capita. The aim was to establish a causal linkage from schooling to national economic development. There is a close statistical relationship between the two, but the causal linkage has never been fully and convincingly demonstrated. Little reason has been provided for the differences in mean years of schooling among countries at similar levels of GNP per capita. Our data show a strong relationship (r=.726) between mean years of schooling and the log of GNP per capita. Attempts to expand the relationship by adding two other independent variables — time and the number of years since political independence was achieved — contributed nothing of interest.

— *Other plausible variables added to the equation explaining inequality in the distribution of schooling in terms of mean years attained had little effect.* Other political and social variables were added to average number of years of schooling to improve the explanation of inequality. No significant gain in explanation was provided

— *Many high-income countries have particularly equal distributions of schooling.* Let us ask a simpler question: which countries have particularly equal distributions of schooling? By definition, for the Gini coefficients to be low, most people have to receive approximately the same amount of education. One way that a country can accomplish this is to provide universal primary schooling but restrict admissions to the second and third levels. A number of countries fit this pattern, as Column A of Table 9.2 indicates. None are poor countries; several of them are East European Communist countries. A second way to attain a low degree of inequality, obviously, is to open the secondary level while remaining relatively restrictive with regard to higher education. A smaller number of countries fit this pattern, as Column B of Table 9.2 shows. The countries in Column B are richer, and the date is later. The case of Finland, U.S.S.R., and Czechoslovakia suggest that the pattern of Column A may be a first stage in equalization and the pattern of Column B a later stage. The pattern shows favorably for most Socialist countries, and for wealthier capitalist countries.

— *Only a few developing countries also have relatively equal distributions.* It may be of interest to see which among the developing countries have the lowest levels of inequality. This is shown in Table 9.3. This list may have a discouraging effect on equity-minded policy makers in developing countries. Of the 19 countries listed, 10 would probably no longer be classified as developing countries today.

Perhaps of more interest to policy planners in the poorer countries are those with low inequality and low income — say, less than $300 per capita in 1975 prices. This is a very small set of countries and includes only the Republic of Korea (1955), the Philippines (1956), Sri Lanka (1969), and Thailand (1960, 1970).

5.0 *Effect of Education on Income*

We can now deal briefly with the second major issue, which is the effect of education on income. Once the distributive pattern of schooling is determined, the different amounts of schooling received by different types of people can be multiplied by the effect on income of the schooling received by each type. This, in turn, will yield the effect schooling has on the distribution of income. Data on the net income return from different amounts of schooling have now been compiled for a large number of countries (and faithfully catalogued by Psacharopoulos, 1973). The calculation might appear to be a simple one, but it is not simple, as the discussion in Chapter 5 demonstrated

The first difficulty is that of determining how much of the association between income and school attainment is caused by schooling, rather than being attributable to jointly varying influences such as socioeconomic background and ability This problem has not been handled well in most rate-of-return studies Psacharopoulos (1973) notes that while many early studies simply assumed that 60% of earning variation was attributable to education, several later ones employed regression analysis to estimate an earnings function. Among the latter group of studies are Hunt (1963), Carnoy (1967), Hanoch (1967), and Blaug (1971), as well as Thias and Carnoy (1972). In these studies the deductions to allow for other factors which affect schooling and income vary from case to case The most significant adjustments would appear to be those relating to socioeconomic origins. Whatever the adjustment, there is still a considerable direct influence of schooling on income

A second complication, however, is that the causal effect of schooling on income is not the same for all types of people; nor is it the same for different types of schooling which may add up to the same number of years of school attainment The returns differ by different types of people (males vs. females, or people from varying socioeconomic backgrounds), and by different kinds of schools (e.g vocational vs. academic high schools, urban vs. rural schools). These are averaged together to produce what is referred to as the rate of return to education. It is occasionally noted that males earn higher returns than females, or that returns are different for vocational and academic secondary schooling (Psacharopoulos 1973). But the broader implications of the point have generally gone unnoticed until recently.

In a perfect labor market which allocated workers who were identical except for the amount of schooling received, it makes sense to

Table 9.2
Countries Which Have Particularly Equal Distribution of Schooling[a]

(Population Aged 25-34)

A Emphasizing First-Level Schooling	B Emphasizing Second-Level Schooling
Austria (1961)	Canada (1972)
Belgium (1961, 1970)	U.S.A. (1960, 1970, 1971)
Czechoslovakia (1961)	Czechoslovakia (1970)
Finland (1950, 1960)	Finland (1970)
Hungary (1960, 1963, 1970)	German Democratic Rep. (1971)
Iceland (1960)	Australia (1966)
Ireland (1966)	New Zealand (1966)
Netherlands (1960)	U.S.S.R. (1970)
Norway (1950, 1960)	
Poland (1970)	
Romania (1956)	
United Kingdom (1950)	
U.S.S.R. (1959)	

[a]Defined as Gini coefficient less than .200. "Emphasizing first-level schooling" is defined as mean years of schooling less than ten. "Emphasizing second-level schooling" is defined as mean years of schooling of ten or more

Table 8.3
Developing Countries Which Have
The Most Equal Distribution of Schooling [a]

(Population Aged 25-34)

Costa Rica (1963, 1973)
Cuba (1953)
Jamaica (1960)
Panama (1970) [b]
Puerto Rico (1950, 1960) [b]
Argentina (1970) [b]
Chile (1970)
Paraguay (1972)
Uruguay (1963) [b]
Korea, Republic of (1955)
Philippines (1956)
Sri Lanka (1969)
Thailand (1960, 1970)
Bulgaria (1946, 1956) [b]
Greece (1961) [b]
Italy (1951) [b]
Portugal (1970) [b]
Romania (1956, 1966) [b]
Yugoslavia (1953, 1971) [b]

[a] Defined as countries with GNP per capita of less than $1,400 (in 1975 prices) and a Gini coefficient of the distribution of schooling of less than .400.
[b] Had a GNP of $1,400 or more in 1975.

speak of the rate of return to a completed secondary education. In the imperfect labor markets of the real world the practice is less defensible. Jallade (1977) looked at rates of return to basic education earned by different types of people in Brazil. He found variations in returns between males and females, urban and rural, low and middle socioeconomic origin, and farm and nonfarm workers. The magnitude of the differences was not particularly great. Private rates of return to lower secondary schooling for 10 different sex/socioeconomic status groups were almost all within the range of 16.8% to 24.7%. For primary schooling, all but one rate (7.5%) was in the 10.9% - 14.6% range.

In a study like Jallade's, which does not calculate an earnings function but instead calculated uncorrected rates of return, the observed differences may be attributable to different socioeconomic causes (In Jallade's study, high-status males generally earned higher returns than females or low-status males.) It is also conceivable that schooling could have differential effects on earnings of different people, even after account had been taken of the other factors. The point remains that the relationship is complex.

The third and final complication gets back to one of the major difficulties of rate-of-return analysis. It is based on a given level and pattern of labor supply and demand, and calculates only the rates of return of a particular market position. As changes occur on both the demand and the supply side of the market, rates of return are likely to change as well Although economic growth will increase the demand for educated labor in many countries, supplies of educated labor have increased much more rapidly than the demand for such labor. In countries with low school attainments in the population, it is possible for the stock of a particular type of labor (e.g. high school or university graduates) to double within just a few years. If older employees, with secure jobs in the modern sector, are sheltered from the ensuing job competition, then there will be a sharp increase in the ratio of job seekers to openings. The result for developing countries is the anomaly of educated unemployment.

Another effect of rapid increases in the supply of educated manpower is to drive down the rate of return. Over time, changes in the supply of different types of labor will be reflected in the structure of wages and salaries. If wages are rigid, job competition will force people with a given amount of schooling to undergo prolonged job searches and, eventually, settle for a position which is less renumerative (and prestigious) than the jobs obtained by previous graduates of the same level of schooling. Competitive labor markets tend to produce wage competition, while segmented labor markets tend to produce job competition. Both mechanisms lead to lowered returns to particular forms of schooling.

Rapid expansion of particular forms of schooling may also influence net returns through its effect on the costs of schooling. This effect could be significant where the provision of highly subsidized public schooling

was held in check and expansion occurred through private schooling, with costs borne primarily by students and their families.

6.0 *Conclusion and Policy Implications*

We have attempted to highlight the ways in which schooling can influence the distribution of earnings. Two main groups of influences — the distribution of schooling itself and the differential effects of different types of schooling on different types of people — were examined briefly. On the basis of the preliminary analysis undertaken here, a few conclusions and policy recommendations can be suggested.

As GNP per head and mean years of schooling rise, there is a broad tendency for all forms of inequality to decrease. At very high levels of schooling there appears to be some tendency for inequality to rise again. The spread between the earnings of highly educated people and those of less educated people tends to narrow at high levels of development. Bias in the selection of individuals for advancement to higher levels of the school system may also decline as GNP and average schooling attainments go up.

These are all long-term and somewhat loose trends, which tell little about the causes of individual country variations. The analysis raises the issue for planners but it does not indicate what governments can do to achieve greater equality in the distribution of income and/or education in the shorter run. More education tends to be more equitably distributed than less education. For planners the best strategy would be to plan for an amount of schooling appropriate to the economic development and the resources of the country. Differentiation in amounts of schooling to different individuals should be held down, and based, if possible, on system performance criteria. This pattern of schooling in the early stages would emphasize universal primary education. Secondary and higher education would be sharply restricted. Later, there would be extension to more widespread secondary schooling. Expansion of higher education would be held in check until a much later stage.

This study supports the view, expressed by many analysts (Richards 1977), that improving the income distribution significantly, through manipulation of the school system, is more difficult than many had hoped. There is also some support for the guardedly optimistic view expressed by Jallade (1974, 1977), that equitable social effects can be achieved by manipulating school access rates, promotion criteria, financial aid, and other features of the system. Two points emerged which have not featured prominently in the debate hitherto. One is that there is a long-term trend toward a more equal distribution of schooling, and probably also of earnings. The other is that it is probably worth paying more attention to the distribution of schooling itself — both in the sense of size distribution and in the sense of selection criteria.

APPENDIX

Example of Illustration of Calculation of Gini Coefficient

The Calculation of the Gini Coefficient is performed in this example:

1. Education attainment is distributed into deciles (ten intervals of 10 percent each) cumulated from the first decile where the mean years of schooling is 0 years up to the tenth decile where the mean years of schooling is 16 years.

In the Appendix table which follows, the first column shows the decile numbers form 1 to 10. The second column shows the mean years of schooling for each decile.

2. The third column shows the intervals of educational attainment by year. The data were reported by the United Nations according to these intermals. The choice of intervals is arbitrary.

3. In the fourth column, frequencies have been converted into relative frequencies or percents. (These were already converted to percents in the UNESCO data).

4. The relative frequencies (expressed as percents or proportions) are cumulated up from the lowest to highest decile, as in column 4 of the Appendix table. Column 4 shows the percent of proportion of the population who have the amount of education that corresponds to the decile, or less.

5. In the last column, the Gini coefficient is computed, according to the formula:

$$G = 1 \cdot (f_i - f_{i-1})(Y_i + Y_{i-1})$$

Where $f_i = i^{th}$ decile and

$Y_i = i^{th}$ cumulative percent

This means that the last column is .10 times the sum of adjoining percentile relative frequencies. For example, the third decile value in the last column is .10 (.0354 + .0813)=.01167. The values of the last column are summed and subtracted from 1 to yield the Gini value. If the distribution were perfectly equal, or nearly so, the Gini would come out around 1—.9999,or nearly zero If it were very unequal, the coefficient would come out 1—.0999, or close to one. The theoretical range is 0 (perfect equality) to 1 (perfect inequality) but the actual ranges usually fall between .20 and .85.

Illustration of Calculation of Gini Coefficient

1 Decile (f_i)	2 Mean years Years Y_i of School	3 Interval in years.	4 Cumulative% (Y_i)	5 Gini $(f_i - f_{i-1})(Y_i + Y_{i-1})$
1	0	0-1	0	0
2	3	1-5	.0354	.00354
3	6	6	.0813	.01167
4	7.5	7-8	1723	.02536
5	9	9	.2642	.04365
6	10.5	10-11	.3634	^6276
7	12	12	.4859	.08493
8	13.5	13-14	.6375	.11231
9	15	15	.7983	.14358
10	16	16+	.9999	.17982
				.66765

G = 1 - .66765 = .332

Example: Calculation of Gini Column

Decile 1 =		0
Decile 2 =	(.10)(.0354)	= .00354
Decile 3 =	(.10)(.0354 + .0813)	= .01167
Decile 4 =	(.10)(0813 + .1723)	= .02536
Decile 5 =	(.10)(.1723 + .2642)	= .04365
etc	Total	66765

G = 1 - 66765 = 332

In empirical results this .332 indicates fairly high equality in the distribution.

Note $(f_i - f_{i-1})$ always .10 (decile definition).

$(Y_i + Y_{i-1})$ = sum of cumulative % in each two succeeding deciles.

CHAPTER 10

Linking Education and Work: Background Issues for Planning

RUSSELL G. DAVIS

1.0 *Education and Work: Introduction*

In all nation states of the world, formal schooling, supported directly from public funds, or indirectly through social agencies, is designed to transmit the fundamentals of the culture, instill a sense of national political purpose, develop social values, and teach knowledge and cognitive learning skills. Also, for some portion of the populace, education and training are designed to teach manual and professional skills, and knowledge that will prepare people to find employment and to work productively. Training people for work is a very recent objective of education.

1.1 *Brief Historical Note on Purposes of Education*

In the ancient civilizations, formal education was not designed to train people for work. The aims were more lofty. In the Indic civilization, the purposes of education were to bring to men an awareness of the primacy of the spiritual and a realization of the unity of the individual and the universe, the bond between earthly and transcendental being. In China, men learned the paths to virtue and contentment, and when they were versed in the classics they were certified as elites fit to govern in the Empire. They were educated to govern and not trained to be governors. The Greek states gave their citizen elites a broad and rounded background in culture and arts (including exercise and the martial arts). This fitted Greek youth for civic participation, self-government, and thereby contributed to the survival of the *polis*. In the Middle Ages and the Renaissance, men were given broad educations designed to fit them to be courtiers, governors, and general men of affairs. Education did not teach crafts and offices. Men were prepared for specific offices and tasks through supervised practice. For the skilled trades and crafts this was formalized in apprenticeship and regulated by guilds and associations. Training people for jobs and work in school programs is a practice only of the last century. The

practice developed late in the first phase of the Industrial Revolution, when large numbers of urban migrants with little experience and tradition of industry had to be trained for industrial life. Unions were beginning to acquire voice if not yet strength, and the formal and familial patterns that had regulated apprenticeship had broken down and no longer served to train and certify. Some educational innovators saw vocational education as a new way to provide educational training and service.

In the developing countries vocational education was created at the same time as the general education system. The training of people for work has been accepted from the outset as a central purpose for education. Many of the developing countries in Asia, Africa, and Latin America now prepare and follow periodic national development plans. In such plans, education and training are specifically addressed to economic growth and often guided by the manpower requirements derived from economic growth targets.

Educational planners are confronted with the task of designing a closer link between education and work in order that schooling will be more relevant to employment requirements and, ultimately, to work performance. The task is crucial but not easy. There is no check list or set of methods for accomplishing it. This paper is designed to: (1) outline issues that are related to the problem of fitting schooling to work; (2) review proposals for making education and training more responsive to job requirements, and (3) assess the comparative experience of countries in developing policies and programs for linking education and work.

1.2 *Background to Problems of Education and Employment*

In the past fifteen years all national development plans have attempted to link education and training to national economic growth and the resulting requirements for educated and trained people. A review of fifty plans reveals not one exception to this. The linkage may be through a very precise and detailed forecast of manpower requirements derived from economic growth targets; or the connection may be a more vague and general assertion of the linkage, but there is universal acceptance of the principle.

Any collection of national plans will be filled with explicit statements that education and training are designed to prepare people for the work force. The idea that education and work must be linked is the principle that underlies manpower planning, vocational education, and training through combined classroom instruction and on-the-job practice.

Educators have long understood that schooling must be relevant to work. In fact, Spencer (1936) made education for earning a living one of the goals of schooling, and it was one of the Seven Cardinal Principles of Education (1918). Educators planned education to fit job re-

quirements, long before economists discussed investment in education and rate of return as central principles of human capital theory. The view was accepted, if not fully articulated, that investment in education was justified on the basis of a return, both to society and to individuals, in the form of enhanced productivity which was reflected in increased earnings from work. In the developing countries for two decades beginning in the early 1950's, school systems were expanded and budgets increased on the hope that there would be increased social and private returns through increased education, enhanced productivity, and increased earnings. Economists carried out rate-of-return studies to demonstrate that increased earnings went with increased education. More recently there has been questioning of the view that education, at least as it is carried out through formal schooling, is a certain contributor to production and economic development. Chapter 5 reviewed studies which showed that the relationship between education and earnings is more complicated than earlier rate-of-return studies suggested. For policy makers, planners and educational administrators, however, the view is that education through formal and nonformal schooling does make a direct contribution to increased production and economic development.

Though the direct link between education and productivity was not usually studied or validated, indirect evidence in the form of higher earnings accompanying more education seemed to validate the theories of the economists and the suppositions of educators and political leaders. In very recent years the direct evidence to support the argument began to appear shaky. Educated unemployment began to appear in West and East Africa, in Southeast Asia and massively in India With no jobs there were no earnings. As the number of people with educational credentials grew, competition for the few jobs which required educated people increased and the differential which had been paid for modest levels of education began to decline. Rate of return was revealed as mainly an artifact of scarcity, and not a measure of productivity

Signs of educated unemployment also appeared in the United States in the early 1970's as economic growth slowed. Births had been dropping, population in the younger ages began to decline, and enrollments followed. Growth in higher education had, in part, nourished itself. Much of the increase in employment had been in teaching itself. As enrollment growth began to slow, teaching jobs grew scarce and educated unemployment appeared.

There can be neither social nor private return on education unless schooling is followed by employment and earnings. In the developing countries investment in education did not yield the promised economic returns. When the expansion of formal schooling was followed by educated unemployment, theorists attacked manpower planning for assuming rigid occupational and educational structures. Manpower planning and vocational education were vulnerable as practical

policies because they failed to reduce unemployment. Also the per student costs of vocational school were higher than general education. Vocational education did not necessarily produce more versatile or willing workers. Sometimes it produced graduates who would not perform necessary jobs which they perceived as beneath their status. This may not have been a common problem, or attributable to vocational education in any case, but it was believed to be a problem by employers in both Calcutta and El Salvador (Davis and McGinn 1977).

Proposals were made to cut back schooling, to invest in more productive social and economic alternatives, which were rarely specified, and to address the issue of employment more directly through job creation. One form of this was the mobilization of workers for government employment on large projects. Modifications in investment and technology were also proposed in order to make projects less capital-intensive and more labor-intensive. This also included the development of simpler product lines to supply local markets, and financial and technical assistance to create more small-scale industries and self-employment. The goal was to create employment directly, rather than through education.

Programs to create employment were not low-cost or effective. Many programs created jobs only for those who worked on the unemployment problem itself. Some employment creation proposals were dubious. One idea was that more employment could be created by putting on more shifts in idle factories; the multiple shifting solution. Where the market demand for the additional goods would come from was not clear. On the basis of the argument that education was essential to economic growth, economists had attracted increased resources to education. Educators had welcomed the support. The investment in education was increased but economic growth did not follow. Educators finally woke to the fact that the solution of employment, especially general demand-deficient employment, was outside their competence and powers, and beyond remedy through education alone.

1.3 *Attempts to Implement Policy Solutions for Unemployment*

Monetary and fiscal policies seemed to offer the only possibilities for relieving the unemployment problem through government intervention. These included increased government spending in the purchase of goods and services, and in some cases the employment of large numbers of workers on government make-work projects. Also included were policies to stimulate general business activity through relaxation of credit restrictions, increased provision of credit and increased money supply, relaxation of import restrictions, tax concessions and other concessional aid to businesses (energy, land sites). These policies were not easy to implement in the chaos of developing countries where disorganization and poor information were common. Nor

was it easy to monitor the consequences of such policies. In some cases the governments could have helped private enterprises more by developing rational sets of licensing and business regulations.

Economists could not be certain of the effects of policy intervention in most cases. Nor could educators understand the policies, or their effects, and plan accordingly. For example, national programs of worker training can be used to alleviate unemployment and to increase skills in the work force, but neither objective was understood by most educational planners. The government could and did begin large infrastructural projects. Potentially, these could provide relief, create needed infrastructure, create employment and also mobilize workers for training; but the projects were usually implemented in an emergency stituation, and thus, they served mainly the purpose of relief. The projects were implemented without any relationship to education and training. The projects required trained people, and trained people required jobs, but the two needs were not brought together.

In India, Pakistan, and Sri Lanka, government offices continued to build up their regular staffs until office workers got in their own way and offered less service to the public than smaller staffs could deliver. Still, the schools continued to turn out graduates, far in excess of the number of jobs the government could create or sustain directly, or help to stimulate in private enterprises. The problems of educated unemployed in Calcutta are described in Chapter 11. Despite a growing oversupply of educated people and few jobs which might require their services, there was little talk of deschooling (cutting down or abolishing formal schools) in the developing countries. Formal schooling continued to grow, and so did educated unemployment.

This paper examines work and education issues which lie behind these problems. The problem of unemployment and the extent to which manpower and educational planning can respond to job creation will be examined. Alternative responses to unemployment through monetary and fiscal policies will be briefly considered. The mobilization approach to full employment will be examined. Programs for fitting education to work and for fitting work to workers' education will be assessed on the basis of experience in India and China.

Manpower planning and vocational education/training can respond to some types of unemployment problems. When the unemployment is structural, in the sense that workers do not fit the jobs, or the jobs do not fit the workers, then manpower planning and vocational training serve to improve the fit. If the structural problem is deeper, in the sense that the market is not free and open, but is dual or segmented, then vocational education or manpower planning will not necessarily serve. The job requirements can be assessed and the workers trained to fit the jobs, but if these workers are kept out of the job because of bias, or if they do not know that the jobs exist, or know but have no access to the jobs, then unemployment will not be solved by manpower

planning and training. If there is unemployment because of deficient demand in the general economy, then manpower planning and vocational education serve only as adjuncts to the monetary and fiscal policies which were briefly described. Because these policies do not work with precision in situations of extreme economic underdevelopment, then more radical alternatives, where the whole economic structure is overturned or changed, or where national mobilization and work assignment is attempted, may be proposed (Bowles 1979).

Manpower planning and vocational education are not all-purpose solutions for all problems of work and education. Manpower planning and vocational training endure because they serve limited ends and alternatives. The issue here is: What else must be considered in planning the linkage of education to work? Before discussing issues in the abstract we will look at the issue of unemployment in the reality of a problem setting such as Calcutta.

2.0 *A Calcutta Street Scene as Background to the Education and Employment Problem*

On Council House Street, where the green of the Calcutta Maidan (Central Park) ends and the labyrinths of the northern streets begin, the lines of patient young men wind round and round the Employment Exchange of West Bengal More than three hundred thousand of the registered unemployed in West Bengal have completed secondary school level or above, yet the educated young men wait for work that does not come. It cannot be that the young men waiting outside the Employment Exchange on Council House Street have much faith in the economist's notion of the individual investment return on schooling. The young men and their families have paid their fees, spent their time and money; but there are no jobs, and thus there are no earnings on which to base private rate-of-return calculations.

Down Council House Street come the officials of the government of West Bengal, bound for their offices in the Writers Building. They pass the lines outside the Employment Exchange, and it cannot be that these officials have much faith in the public return to investment in human capital, the social return on high level manpower development that these young men and their costly training represent in the abstract. Without work there is no production, and hence no public or social return on investment.

The lines outside the Employment Exchange in Calcutta reflect a problem that is not unique to India. Counterpart situations of high unemployment among educated people can be found in the Philippines and Colombia, in the cities of East and West Africa, in the United States, and are reflected in the devastating statistics from Sri Lanka which reveal that unemployment rates for university arts graduates run above 50% (Sri Lanka 1973-1977). The first problem of schooling and work is that there must be work for educated and trained people to

do. The issue is, what should planners know about education and employment so that the linkage between the two can be more effectively designed, and maintained through policies and programs?

2.1 *Employment*

The problem of providing work and jobs for all can be solved most directly through mobilization and work assignment. Mobilization, as it is used here, means uniting a population to accomplish defined goals according to a mass accepted ideology. Long-term acceptance of a work assignment requires mobilization built on an ideologically based compliance rather than pure force, although some force may be implicit in the context. This kind of mobilization can provide universal employment, in that, within limits of physical and mental capacity, work is made available to all, and all are made available for work. The population is the workforce, and the workforce the population. The workforce produces goods and services, and these are distributed to the population as return on their labor. China is taken as the exemplar of the direct approach to the provision of universal employment through mobilization and assignment. From here on, the term *mobilization* alone is used. Assignment is understood.

The approach to the solution of the problem of emloyment can also be indirect, through monetary and fiscal policies designed to stimulate the production of goods and services at a level sufficient to create and maintain jobs and employment. When monetary and other indirect policies are insufficient, the government can intervene directly and create programs and projects which require workers. The intervention must be handled carefully to minimize any adverse effects on total production. This is difficult to accomplish in developing countries. Any government intervention in a very small economy may be massive and discontinuous and have uncontrollable side effects. Control over policy instruments is also uncertain. Unless there is complete government control and/or mobilization, it is difficult to control and manage accompanying social demands. Government intervention to create jobs may have inflationary consequences and attendant loss of economic efficiency.

Employment legislation in the United States, from the Employment Act of 1946 to recent debate on the Humphrey-Hawkins Bill has offered hesitant support for direct creation of employment by the government. In developing countries — India is one example but there are others — employment in government jobs is always high. When the government intervenes to create large projects, it is often in the form of emergency work relief where massive numbers are given subsistence assistance. When the project is unplanned the product or outcome of the work may not contribute to economic growth. The project may also yield little social benefit. In the drought belts of Africa, for example, government projects served mainly as emergency relief.

Massive government intervention to create work could approach mobilization, but this is not likely or possible in countries where the fundamental, ideological basis for making mobilization an acceptable alternative, has not been developed. Whether jobs are created and employment sustained through mobilization at one extreme, or through monetary and fiscal policies without direct government intervention, or through some in-between combination of fiscal policy and direct intervention, education and training can be designed to fit workers more effectively to their work. How this is done under varying situations and political economies is the next concern here.

2.2 *Education and Work*

Education is assumed to do more than merely train people for work; but to do even this much, it is necessary to determine the requirements of work, to design education and training to fill those requirements, and to design work to match the capacities and requirements of people. In work, people have physical, material, and psychic needs which determine their requirements in a job. Fitting work to people is thought to be a recent concern of the West, as in current pilot programs for job redesign and work enrichment, but even the Romans had a start on adapting work to people when they modified oar length and bench height to fit different batches of galley slaves from different countries of origin. In all countries schooling can be designed and redesigned to improve the way education and training fit people for work.

2.3 *The Match Between Educational Background and Job Openings*

Back on Council House Street there are hundreds in the job line who hold A.B. degrees, some with "firsts" in mathematics, or English, or physics, but that is the line that comes in the side door of the building. An industrial employer, coming in the front door, and without waiting, states that he can find no one available in air conditioning, refrigeration repair, plumbing, silk screen printing, or circuitry . . . For the young men out in the line, the requirements of the few jobs that do exist in Calcutta have not been well determined, nor have education programs been designed to respond to existing job demands. This is not a problem limited to schools in Calcutta.

The problem of lack of fit between job requirements and education also exists in the United States. The Panel on Youth of the President's Science Advisory Committee (1973) estimated that, in the decade ahead, three quarters of a million college graduates will not find jobs that require college level education. The education level of these graduates will not fit the requirements of the jobs that will be available. Also, the jobs will not require the knowledge or provide the material and psychic returns that college graduates will need and de-

mand. Education *fits* people for work when it provides the cognitive knowledge, skills, and social attitudes required by that work. Work may be said to *fit* workers when it requires the skill, knowledge, and attitudes workers possess, and when the work provides the material and psychic rewards workers need and demand. The fit between workers and jobs can be improved, both by changing the job and by changing the preparation of the future worker. The fact that adjustments are possible both in worker education and in job content and structure should be noted by planners who often concentrate their attention on adjustment to only one side of the fit. Manpower plans often seem to assume that jobs cannot be restructured to fit with the education or expectations of the worker. Educational planners sometimes work as if their programs are unchangeable and jobs must change to fit them. Clearly, in a free society and open economy, adjustments must be planned in both jobs and workers.

2.4 *Determining Work and Education Requirements: Manpower Planning*

In China, mobilization appears not only to solve the problem of providing work to all, it also seems a crisp solution to the problem of fitting people to job requirements. It doesn't do this very well, but that point will be saved for later examination, while a somewhat less sweeping remedy for the education/employment problem is examined.

One alternative approach is manpower requirements planning. In its simplest form, employment and job requirements are assessed, and education and training programs are designed to fit people to fill the jobs. The number of plumbers or engineers required in the workforce is to be matched by the numbers graduating in these fields from schools and training programs. Sadly for planners, but happily for free spirits, the fit is not exact. Workers are born, educated, and trained in one location, and the jobs are in another. This frictional employment problem besets Russia, where work opportunity grows in the east and population grows in the west. When asked what Russia does to fit education and training programs to work, apart from manpower planning, a Russian economist who specializes in education describes *new* programs, which are, in fact, similar to the educational and vocational guidance programs that have been operating for many years in other countries. These programs have never quite solved the problem of matching education to work.

There are a number of reasons why vocational guidance programs will help improve the fit of education to work, but not solve the problem beyond a certain point. One reason is that guidance information and manpower information are always slightly out of date. In the world, change is rapid and continuous, information is rarely current. The writers of the *Occupational Outlook Handbook* (U. S. Department of

Labor, serial publications) state that by the time the reader sees the information, and the guidance counselor makes it available to a student, the information will be out of date. No manpower or guidance information can ever escape this problem. In countries where the information is best (most accurate and most current), the job market and the world of work change most rapidly. In countries where employment and work conditions change more slowly, the information is also more incomplete and dated. A second fact is that students may receive sound and timely guidance and choose not to follow it. Guidance counselling does attempt to match education/training with jobs, using information that is accurate, complete, and current, but wherever the choice is left free, students have the option of not accepting the advice given.

Manpower planning may utilize the same information used in vocational guidance counselling. When manpower requirements planning is attempted over a national domain, there is considerable mismatching, as planners try to work with aggregated and out-of-date information. In some locales the fit may be good, but in many it will not be exact. When space does not confound the manpower planner, time does. Job requirements change in number and kind over time, and the education and training response never quite keeps up to the changes. Occupations are born, grow, and die with changes in the level of production activity and the technology which supports it. New levels of general education, and additional types of specific skills, are required. Or, where the education is not required to perform the job, it is demanded as a form of certification, or through the simple snobbery of employer preference

Against an uncertain future and over a wide domain and for a large workforce, manpower planning can only write very general requirements, by projecting growth in employment by sectors of the economy, distributing this employment by occupations, and tracing education and training requirements from the occupational structure (Davis 1966) This analysis may yield inexact results. Sectors and industries within them can have varying occupational structures, seemingly with no profound effect on production. The correspondence between occupations and educational background may also be inexact; and thus tracing educational requirements from manpower requirements yields uncertain signals for education and training establishments. Even if it were possible to set the requirements beforehand, the future would not conform to the plan, as long as individuals had freedom of choice to enter, or not enter, or to move from one occupation to another. Thus, free individual choice overturns manpower planning in open societies. Mass assignment to work, supposedly to benefit the society as a whole, may do just as poorly in fitting workers to jobs.

2.5 *The Psychic Return on Schooling*

Standing on Council House Street, observing the long line of young men outside the Employment Exchange, raises the question of why the young men have gone to school and persisted in so much fruitless study in the first place. To dispel the notion that the young men receive much of a cultural return on their education it is only necessary to spend a day in the halls of the colleges of Calcutta University. Given the richness of Bengali culture, most children of the middle class, the *badhra lok*, may have lost a little cultural ground at college. There they have read lists and memorized facts in an alien language, and have been jammed into noisesome halls like ricksha pullers caught in traffic at Sealdah Station. They may have missed months of schooling through strikes. Then, by dint of a furious effort of concentrated study and great feats of memorization, the best of them survive their examinations. After all this, they return from the academic wars with a piece of paper in hand.

It is the paper, the credential, and not the cultural return that is the object of it all. Some observers say this, and there is some truth to it, except that with no employment the paper is worthless as a credential. There is more to the pursuit of schooling, under extreme sacrifice and with small return in prospect, than the acquisition of culture or a credential can explain. Schooling attracts and regards powerfully all over the world, something the educated advocates of de-schooling in the West should be aware of when they propose that people in poor countries should accept less schooling.

Formal schooling for the poor, even in situations where subsequent employment prospects are bleak, provides a high psychic return. It may only be aspiration preserved in aspect, but the mere promise of school is rewarding. In Maslow's terms (1970) it is a "self-actualizing" experience, at least in anticipation. One can at least have the hope of a good job in the future. Employment, at least in the jobs that are available to many, does not provide the same psychic return or permit anticipation or self-actualization.

For many of the young men awaiting outside the employment office in Bengal, the expressed object of the wait is to get a job, but the preferred choice is to get back into school at a higher level, and then to get a job. The graduate of a technical school says that he would prefer a place in an engineering school to an immediate job. Why? "Because when I finish engineering I will get a better job." Though he can read in the local press that there are ten thousand unemployed engineers in Calcutta, he will insist: "I will get a better job . . ." That is one possibility. Another possibility is that by getting into engineering school he will have several years in which to enjoy the anticipation of a better job — but still not get one.

Why persist in schooling which leads to unemployment and no earnings? In places like Calcutta young people do persist in school, even

when the schooling is of poor quality and yields small cultural benefit. They persist when schooling is irrelevant to employment, and when there is no employment. One reason they persist is because schooling, the experience of being in school and the status of being a student brings a psychic reward. There are few opportunities to gain such rewards from working in the jobs which are offered outside the small modern sector in most developing countries.

Thus, the problem is not so much in reforming schooling so that it fits people for work, as it is reforming work so that it fits people, and thus provides an attractive alternative to schooling. At least this is so in societies where there is no mobilization supported by an underlying ideology. Schooling can be reformed so that it fits people more effectively for jobs, but only up to a point.

3.1 *The School Response to Fitting People for Work: What Schools Can't Teach*

If there is employment, then people can be educated and trained to perform this work. Provision of employment on a near-universal basis depends on social and economic policies outside of schooling; that is, the solution lies beyond educational policies. But educational policies can enhance the effectiveness of the school response to work, if there is work. Even here there are limits. School is only one setting for education which, in turn, is but one mode of providing for human learning. What humans must learn, outside as well as within schools, includes both the aesthetic and the practical arts. Learners must also acquire knowledge which transcends any given job situation; and they must learn science which provides a theory and method for increasing knowledge Members of societies must also learn, in the sense of internalizing and exemplifying in their behavior, the morality and ethics of both individual and social conduct

Formal education, exemplified in the conventional association of student/teacher/book/classroom, with cognitive learning the main objective, is not the best means for providing all that humans must learn of aesthetics, practical arts, and ethics. Nor is the school the best setting for this learning. Facts about the arts, both aesthetic and practical, can be taught in schools, where models and cannons can be learned, but mastery in the performance of the arts comes through practice. This practice can be best provided outside schools The propositions of ethics and morals can be presented in schools, and memorized as maxims, but moral values and ethical conduct are usually tested, validated, and internalized so as to affect behavior, in experience outside of classrooms. Literate knowledge and mastery of science do seem to require a founding in formal education. This base is probably most effectively provided to large numbers of average learners within a school, but even this last proposition has never been fully tested with alternatives.

3.2 *Establishing and Reforming Education Systems*

Criticism of schooling in the past century has addressed shortcomings in the entire range of teaching and learning: failure to teach the aesthetic and practical arts, failure to develop morality and ethics, and failure to promote literacy, general knowledge, and mastery of science. Most reform attempts have been limited to tinkering with the academic curriculum in order to expand, deepen, and improve conventional instruction in general knowledge and science. In developing countries the new material has often been imported from other cultures. Schooling introduced in Africa and Asia by the colonial powers sought not only to change the cultural and scientific lore but to replace it. In the Philippines, there were successive waves of educational importation from Spain, the United States, Japan, and the United States again. In turn, the schooling introduced in Japan in Meiji times borrowed a great deal from abroad and changed it into a local variant only slowly and over time (Ito 1972). More recent reforms of national systems have attempted to move the other way, and to break away from cultural imposition from outside. The reforms in Tanzania, proposed by Nyerere (1967) and implemented following the Arusha Declaration, are an example (Breeden 1970).

3.3 *Reform Attempts: India and the Nai Talim*

Reforms of schooling have come to most of the world, but the effects have not lasted. After early changes, the pattern settles into something that is standard the world over. Gandhi through the *nai talim* (new education) tried to bring work and production experience into primary education and, thereby, implant a unique form of schooling to fit people for work. In *nai talim*, children used the *takli* and *charkha* (spinning frame and wheel) to learn not only practical arts and skills, but also to learn how to apply general knowledge and science to the solution of workday problems. In the process, school production units turned out a product of economic value in a poor country and became self-supporting, a goal that has been pushed much further in China. The *nai talim* did not last. Incorporated after independence as an official program, Basic Education, *nai talim* ended as an economic and pedagogical travesty of the original notion, and has gradually been buried in the highly formal school systems of the various Indian states. For example, the spinning wheel, introduced by Gandhi, in part as an example and a symbol, became part of the ritual, and spinning was introduced widely as a practical art, even in areas where it made no economic sense and had no cultural warrant as a craft.

3.4 *Educational Reform in China*

China is an example of more radical reform, where morality and practical experience have been made central and integral to school-

ing. From what can be learned from records of the recent past, and occasional commentary, educational reform in China did for a time improve the teaching of the practical arts and did succeed in inculcating the morality of the national ideology. Mobilization was built on ideology, and it was not accomplished without economic cost. It is much less clear that the reform in China improved the learning of advanced knowledge and science.

In China within the context of a general mobilization built upon a pervasive ideology, schooling was reformed. The result appeared to be the most effective blending of work and education accomplished in modern times. Even allowing for selectivity in reporting from inside, and bias from outside observers, China appears to have accomplished a most effective blending of work and education to prepare its people in the practical arts for work and enhanced production. Movement toward reform through the blending of work and academic education may have peaked in the latter part of the seventies, and the trend may be back toward more academic formality. These changes in Chinese education have occurred in continuous cycles since the Yenan period (Seybolt 1969). Similar reform cycles occurred in the Kiangsi Soviet period, in the Yenan period at K'angta, after the Cultural Revolution, and at various other periods until recent times

Aspects of the Chinese work-education approach can be traced to Makarenko's work in Soviet youth institutions The Chinese applied the Makarenko methods in a wider and less regimented surrounding (Bowen 1962) Makarenko's education-production collectives did not spread, and like other work-education reforms did not last

For the past thirty years the Chinese education system has been decentralized Strong local control, along with the necessity of making do with scarce resources, has led to highly varied forms in the provision of educational services If the form is varied the substance is not, nor is the pedagogy and epistemology which undergird the curriculum. The recent versions of Chinese education have included *occupational education*, in which study and practice are blended; *cultural education*, which provided the rudimentary knowledge and literacy skills for further study, *political education*, designed for study, interpretation, criticism, and reform of ideology and social practice, and *theoretical education*, to bind the other three areas together with an epistemology that derives mainly from Mao (1971)

Learning is viewed by Mao as a sequence that begins with the perception of phenomena and the linking of perceptions into formed concepts Inference and judgment are then applied to the related concepts to yield conclusions which are validated only when applied and tested in social reality The epistemology is novel only to the extent that it is embodied in education and social practice In Chinese schooling, cultural, occupational, political, and theoretical education are not separated as curriculum divisions or discreet study areas Rather they are the basis or focus of all instruction. All four may be blended in any

one lesson unit or work experience. Within cultural education the areas of study are divided into the conventional curricular rubrics of mathematics, science, and Chinese language. Physical education and foreign language training are also strong in most school programs

Education in China, consistent with the epistemology of Mao, has been under constant trial, test, and change, some of it radical, since the time of the Kiangsi Soviet in 1930 and the first circulation of Mao's "On Practice," dated 1937. The blending of productive work with formal schooling was an economic necessity in the time of the Kiangsi Soviet. It was a political, military, and economic necessity in the Yenan Period. Since Yenan the blending of work and schooling has been recurrent, cyclic rather than constant. Currently work experience dogma seems to be weakening. Swings in the cycle reflect an underlying dynamic that has persisted to the present time, a continuing tension between standardized schooling designed to produce experts and education reformed to produce trained workers socialized in the ideology of China.

In the Yenan period, work, schooling and ideological development were effectively blended, most notably in the cadre training school at K'angta. As Communist power spread out of the enclaves and across the mainland, there was increasing standardization of schooling, and in the period of Russian influence greater emphasis on the training of high-level manpower. The Great Leap Forward intervened to push the pattern of education back toward the Yenan model. Seybolt (1969) notes that the blending of work and education was reintroduced in 1958 during the Great Leap Forward. The same proposals for blending work and education had been made several times in the past, and the program reforms had actually been implemented. Yet, according to Seybolt, the Chinese acted as though this were entirely new and had not happened before. He states: (It was) "as if no one had ever heard of it, much less practiced it. The same phenomena recurred as an aspect of the Great Proletarian Cultural Revolution following retrenchment in the academic education . . ."

Chinese education is not only constantly changing, it is endlessly varied in form and sponsorship. The basic pattern of Chinese education is a five-year elementary schooling which permits considerable variation in sponsoring unit and curriculum. Schools are run in and by communes and production brigades, by factories and unions to serve children, workers, peasants, and party cadre members. Cultural or basic education is blended with occupational education For all students there is a mixture of political and theoretical education. That there is some blending of production and work with cultural or basic education is exemplified by the primary school in Nanking where the school production enterprise is the manufacturer of pens.

After elementary school there is a two-year middle school. Entrance to higher levels of schooling may follow a period of rustication, a program which mobilizes and sends young and inexperienced people to

the rural areas for experience in production work. Students are selected out of these work situations for study, by committees composed of workers, peasants, and soldiers. The schooling itself is governed by committees of workers, teachers, and students. Opportunities for full-time study at middle school are limited, but there are a variety of other study opportunities, in May 7th cadre schools, in part study/part work programs set up under the July 21 program directive, in correspondence courses and in a variety of short technical training courses offered on factory or commune premises.

Higher education in China, consistent with the usage of Mao, meant mainly colleges of sciences, especially of engineering and agricultural science. Until the recent changes, production, training, and academic study were blended in all variants of higher education. Schooling and production were combined at Futan, Peking, and the North East China College of Electrical Engineering, where the textbooks were said to have been prepared by joint committees of teachers and workers. Mao has cited Tachai in agriculture and Taching in industrial education as the examples of the amalgam of work and higher education, but the work/education establishments most often visited and praised by outsiders were the education programs offered by Shanghai Tool Factory and the production enterprises run out of Tsinghua University. At all levels of education, both work and schooling are effectively combined, but Shanghai Tool, the factory which runs schools, and Tsinghua, the school that runs industrial, agricultural, and construction enterprises, are the models that represent an effective blending of work and schooling.

Recent visitors to these and other work-education sites, after the fall of the Gang of Four and the subsequent upsets, have not been as prone to praise these efforts either on education or production grounds (Bailey in Kerr 1978). Apparently the work-education enterprises were functioning better before the recent struggles, but in any case it is consistent with the cyclic pattern in work education, that the union of work and education has had its ups and downs. We would predict that it will rise again.

3.5 *Other Features of Chinese Education*

Certain features of Chinese pedagogy characterize education at all levels of schooling. The *chi-fa* is a program to encourage students to investigate the reality of work and social practice. The purpose of this study is to improve the learning of practical arts and to enhance practice and job performance. Morality and ethics, consistent with the ideology, are taught with models of correct social behavior. Acceptance of the ideology and the sacrifices it entails is reinforced through "bitter remembrance," in which present favorable conditions are contrasted to the past. Central to all is a pedagogy in which social reality is examined and criticized, and within the ideology and general policy

guidelines, solutions to problems are worked out through struggle, criticism, and transformation. Cooperative behavior and committee participation provide the social milieu for study, work, and learning; thus, the ethic of cooperative work is fostered. Externally the system is adjusted through the great campaigns of struggle and reconstruction. *Hsia hsiang*, rustication, serves as a massive program for confronting young students with the hard sacrifices of rural work and living. It also serves to hold down urban pressure and youth unemployment. *Hsia hsiang* may not develop rural production skills, but it does teach realistic lessons of rural living. It may also reduce the urban/rural separation and the urban privilege that is so prevalent in other developing countries. *Hsia hsiang*, "Going down to the country," does not make many young people happy if refugee reports can be credited. But the total education system not only trains people to do work, it attempts to develop an ethic of work acceptance and social sacrifice (Kay 1978).

The history of Chinese education has shown constant change, but education has survived in spite of actual turmoil. The patterns of organization, the curricula, and even the underlying aims of education are even now changing from the ones described here. Education for the past thirty years has been powerfully shaped by the thought and policies of Mao; and hence with the death of Mao, education will not avoid going into a new period of reform and change. The exact nature of this change is not yet fully clear, but it is possible that the more pragmatic approach to development, advocated by those shaping the political objectives of China, will push education toward more concern with the quality and standards necessary to prepare professionals and higher-level experts.

3.6 *The Limits of Chinese Success in Shaping Schooling and Work*

China appears to have solved all three of the major problems of education and work. Through mobilization there is work for all, and when this is backed up by rustication under *hsia hsiang*, there are no scenes similar to the one outside the employment exchange on Council House Street in Calcutta. There may be philosophers or physicists spreading night soil where the *k'aoling* (grain crop) grows in Shantung, but they are not driving taxis in from the airport. Because the mobilization is based on an ideology which is accepted and internalized, the problem of fitting work to the psychic needs of workers does not appear to arise in acute form for many, although it surely must for some. Most people accept and do their assigned work, and social actualization takes the place of, or fills the need for, the self-actualization sought in the West. At least there is a sufficient level of acceptance in the system so far. Acceptance, and even zeal, is created and reinforced through education, especially in political and

theoretical education. There are periodic upsets, however.

Acceptance of whatever portion of schooling and work falls to the individual by directive and communal decision depends on acceptance of the ideology on which mobilization is based. When the ideology is consistent with the facts of life as experienced in school and work — that is, when there is perceived equity in the sacrifice — then the problem of self-actualization for many does not arise, and social actualization suffices. When life and the ideological schema for interpreting life are inconsistent, there is a massive adjustment, as in the turmoil of corrective campaigns, Great Leaps, and Great Proletarian Cultural Revolutions. Temporary chaos is the price paid in the short run for the adjustment. Continuing acceptance, and relative stability in intervening periods, are the longer-term return. In any event, the problem of making work meet the psychic needs of workers seems to be resolved, at least better than it is in some Western countries. There remains the question of how education fits people to the requirements of work, and it appears that there are limits on the goodness of fit in China.

There are obvious limits to Chinese success in situations where mobilization schemes assign scarce and valuable human resources to jobs which do not require high-level talent, and deprive other work situations of these human resources when indeed the work does demand them. That this is a cost cheerfully borne in order to preserve the system does not change the fact that it is a waste for an underdeveloped country. China, of all places, has not escaped the need for production and productivity. China's success is also limited in that part of education that must provide knowledge which reaches beyond mastery of the practical arts, that is, knowledge which builds more knowledge through science. China has solved the work-education problem well and at the same time provided a basis for social morality and an ethic of acceptance. China has not solved the entire problem of fitting people to work. Through mobilization, talent is mismatched with tasks, and through education, people are not fully prepared for the demands of work which lie beyond an academic mastery of the practical arts. On the mismatch of talent to work there is largely silence except for a few deviants. Acceptance of the ideology takes care of this problem. The other side of the problem is partially revealed in Chang Tieh-Sheng's letter, shown on the following page.

In June 1973, Chang Tieh-Sheng, recommended for university study by the Revolutionary Committee on the basis of rural service since 1968 and his leadership of the Number 4 Production Unit of the Tsao-Shan Brigade, was taking qualifying examinations in physics and chemistry. He handed in a blank examination sheet and on the back wrote a letter which appeared in the *Lianing Daily*, was reprinted in the *Heilungkiang Daily*, and appeared ultimately in *Jen-min Jih-Pao* (People's Daily).

For Chang Tieh-Sheng the ending was happy — he was admitted,

blank answer sheet in science notwithstanding, to higher study in an agricultural college. On the other side, from the person who did not get in, though he may have answered the examination questions in science, there is silence. The effect of this on the future of knowledge development, learning and science in China cannot be known, but it is at least possible to suggest from the well-publicized incident that China has not solved all problems of education and work. In fact, it is precisely the conflict between political purity and scholarship requirements that seems to be working under the surface to continue the unending dynamics of change in Chinese education. Next year education may be different in China.

Chang T'ieh-Sheng's Letter

Dear Leaders:

The examination is over and I like to convey some of my feelings to you.

I came to the countryside in 1968. I carried out my duty conscientiously. I put in 18 hours in productive labor every day. I do not allow anything to interfere with my job not even study. I only started to turn over my books (accounts) when I received the notice on June 27, three days ago. I could not answer any of the geometry, physics, or chemistry questions. As I do not want to write just anything on the answer sheet, I will hand in a blank answer sheet to you. To tell the truth, I have no respect for the book-worms who loaf about doing nothing. I feel discriminated against by the examination which is controlled by the book-worms. During the summer harvest season, I could not pull myself away from my job and hide myself in a little room to study. To do this is very selfish. And I would be neglecting the revolutionary duty entrusted to me by the masses. I would feel very guilty. I am contented that I have not slowed down the collective work because of the examination. The struggle between self interest and collective interest is a real battle. What I do not understand is that a few hours of examination can take away my qualification to study. There is nothing I can say except that all my ideals are now totally destroyed by my productive labor. This is the only point I want to stress.

I am recommended to join in the study group according to the new enrollment policy. The teachers here in the school will remember that I was a good student in terms of academic preparation. The questions today are not difficult. My impression is, they are practical. With one day of intensive preparation I can guarantee that I would give a good answer to every question.

My political attitude, my family background and my relations with the society are all good. As a kid from the city I have learned a lot during the past few years of struggle. The practical experience has changed by world outlook. Here, I have not answered the questions as required (this is not a way to demonstrate my analytical and problem solving ability) but I do not feel ashamed. I do not feel happy about the whole thing. The only thing that makes me happy is that the poor and lower-middle peasants have recommended me to take the examination.

Examinee Chang T'ieh-Sheng
of the Pait's commune
June 30, 1973*

*Translated from *Jen-min Jih-pao*, August 10, 1973, by Yang Shao-hua. Harvard Graduate School of Education, Cambridge, Mass.

4.1 *Education and Work in Other Counties: A General Note*

In the United States, and more shockingly in India and Sri Lanka, the first problem of work and education — the provision of work for people if and when they are educated — has not been resolved. In the United States current employment legislation, such as recent versions of what was the Humphrey-Hawkins proposal, will not solve the problem. There is little political backing for the notion that the government has the responsibility to provide a job for all who seek employment. If rich countries will not guarantee everyone a job it is even less likely that the developing countries with more unemployed and fewer resources could do it.

In the countries of the world, the political, policy and program options for resolving the work and employment problem vary. The range is broad. In some socialist countries — China, for example — there is mobilization and work assignment. Other countries have a weaker version of mobilization. The entire workforce is said to be employed, in official statements. There is in reality considerable underemployment and some unemployment. Within the capitalist countries a range of unemployment rates seem to be tolerated. The rate is low in Japan in a setting of industial paternalism. Low unemployment is permitted in European countries, where there is a mixture of relief policies for nationals and some options to cut back foreign workers when economic slowdown increases unemployment. In the United States a higher level of unemployment is tolerated; and it falls unequally on young minority group males. In many of the developing countries, very high levels of unemployment and chronic underemployment are experienced, with international migration cutting the rates in a few places. Massive work

relief programs preserve the situation from chaos when economic and employment emergencies occur.

There is no country, rich or poor, capitalist or socialist where unemployment is accepted. Governments tolerate higher or lower levels of unemployment before taking monetary or fiscal measures that will have costs in terms of inflation or in loss of optimal efficiency in production. Similarly, there are variations in the way that education and work are linked. In countries where there is mobilization and acceptance of work assignment, education may be effectively blended with work so that learning is emphasized in the workplace and production is stressed in schools. Education is made a central feature of all production, and production is central to all educational enterprises. It is not clear that this blending of work and education must be accompanied by mobilization, as was the case when the Chinese experiment was at its high point. It is clear, however, that considerable government control over schooling is required before people can be persuaded to elect early work experience rather than early school experience. Admission to formal schooling must be tightly controlled; assignment to work and mixtures of work experience and training must be enforced; but almost all, parents and children alike, must perceive this assignment as fair and consistent with the prevailing ideology. Otherwise the system breaks down or evolves into a more formal academic system over time. There is no known case where the blending has held together for more than two decades. This is true even in China where there were cycles of change that occurred in periods of less than fifteen years.

5.1 *Combining Education and Work*

Given the basic provision of work, the response of education must be built from some combination of general or academic schooling, vocational or professional education, and guided experience of work itself. In education and work there are paradoxes which make it difficult to write a simple prescription for combining general education, vocational education, and work experience. For mastery in the practical arts, work experience seems fundamental. Most people have learned their work and mastered their jobs by doing them. This has been true in history, and it is confirmed in current experience for many jobs, even under high technology. Workers still learn to master complex manual tasks, without benefit of literacy, numeracy, or the knowledge and learning skills developed through general education.

On the other side of the education/work problem, graduates still leave school with general education of a high order and no preparation for work. There is a persuasive argument that general education enhances the capacity of the worker to learn on the job, to master the task requirements of his immediate job, and to go on to more demanding jobs. There is also an argument that vocational education pro-

motes general learning equally well and permits transfer of skills across families of similar occupations. Neither position argues against the necessity of making work experience a part of training and education. General or vocational education are not substitutes for work experience, but supports, sometimes powerful ones, of on-job learning. Experience is still necessary for mastery of the art and the job.

5.2 *Work Experience and Schooling*

If schooling is to contribute to preparing people for jobs, some experience of work must be blended with that of schooling, whether academic or vocational. This is a lesson, it seems, which must be learned and relearned in Western countries. In China, too, where blending has been accomplished, the cyclic movements toward work/education and then back toward academic and formal schooling, indicate that the lesson is not easily learned or long retained. History of reforms of schooling, where work and education have been effectively combined — the *nai talim* (new education) in India, for example — demonstrates that such reforms do not last.

It is difficult to combine work and academic schooling effectively; yet mastery of the practical arts through performance and practice is the ancient and traditional pattern, as well as the newest approach to preparing people for work. In earlier times, learning came as an incidental, or by-product, of work. Then, apprenticeship was introduced to reduce the waste of materials and time which sometimes had resulted from learning-by-doing, to preserve standards in the performance and quality in the product, and to regulate entry into the craft. When large numbers of semiskilled workers were required in the workforce of the United States in the last quarter of the nineteenth century, vocational education was introduced as a more rational alternative to apprenticeship. Vocational schooling, as it became isolated from work and production, tended to obscure the importance of work experience as a necessary part of training. In recent years reforms have pushed both vocational and general education back toward work and experience.

6.1 *The Nature of Work and Work Rewards*

The weakness of formal schooling as a preparation for work is based on paradoxes in the nature of work, as well as in the nature of education. Formal schooling has become more general and abstract, with less relevance as a preparation for mastery of the practical arts and production; but work itself has also become formal and abstract as it has been rationalized and organized in modern economies. To prepare for formal and abstract work requirements, formal and abstract schooling is about as good a preparation as any. In many situations

there is no more meaning or purpose in the work than in the schooling which prepares for it.

There is, however, a core of work, in the physical and social sciences and higher-level technology, which demands knowledge and rigorous intellectual formation. Preparation for this kind of work requires a general education that provides a foundation of knowledge and analytic thought that few can acquire in the practice of a job that requires mainly manual skills. It is in addressing this part of work, a small part but nevertheless critical, that Chinese education seems less successful than education in Western countries. The blend of education and work experience in China prepares people well to master the practical arts in those jobs which require them. In educating for the small number of jobs which require more than mastery of the practical arts, which depend on a foundation of general knowledge and science, Chinese education is not equal to education in Japan, Western Europe, Russia or the United States. Evidence on which to base such a judgment, however, is not easy to come by.

6.2 *Lessons Learned on the Reform of Schooling and Work*

There are a few lessons to be learned for the reform of schooling and work. If schooling is to be designed to prepare for work, and it has other ends as well, then education should be blended with experience of work itself. For some, this mixing of work and schooling might destroy the attraction of academic education, because, as the training for a specific job becomes more narrow and vocationalized the possibilities of self-actualization, the promise and not the reality, will become less clearly apparent. This would in the long run be all to the good, but confronting this truth is not an easy public policy for leaders in most countries.

7.1 *Summary of Issues and Paradoxes of Education and Work*

Education fits people for work when it provides the cognitive knowledge, skills, and social attitudes required by that work. Work fits workers when it requires the skill, knowledge, and attitudes workers possess, and when the work provides the material and psychic returns workers need and demand. The first requirement in the development of policies and programs to improve the fit between education and work is to provide work for all who are capable of working. A second requirement is that the work provided be satisfying to the people who must perform it. Much of work is not intrinsically satisfying. One alternative approach for providing satisfying work is through mobilization. If mobilization is to succeed, people must accept work assignment as fair and consistent with the prevailing ideology. The acceptance and performance of work thereby provide social satisfaction and self-actualization. Mobilization also permits control of admission to formal

schooling, assignment to work, and perhaps a closer blending of work and educational experience. This blending is an efficient way to develop crafts and skills, but it does not provide the basis of knowledge and intellectual discipline required in some jobs. For most policy makers mobilization is an extreme alternative. Mobilization may be the surest means of providing work to all. It is not, however, the surest alternative for fitting people to work or work to people. The talents of people may be massively wasted under mobilization.

Short of mobilization and acceptance there is no certain framework for providing work to all. Economic growth and accompanying monetary and fiscal policies can only hold down unemployment. In developing countries, where growth is slow and implementation of monetary and fiscal policies uncertain, there may be high and chronic unemployment. In this situation education can be planned so as to fit people better for work. Planners must determine the knowledge, skills, and attitudes required in work, and then plan education accordingly. Manpower planning and the design of work-related and work-based education and training are useful but they do not provide complete solutions. Manpower planning can improve the fit between education and work, but it will never insure that the fit is perfect.

Manpower planning has been used to improve the fit of education to work, but not to improve the fit of work to education. Manpower analysis could be used for this. This would mean accepting the supply of educated and trained workers as a given, and designing the workforce structure and jobs to fit this supply. Work and jobs could be redesigned to fit the knowledge and skills of workers through manpower planning.

Work may also have to be redesigned to fit the needs and demands of workers. There are paradoxes and difficulties in designing work-related education, and even more difficulties in redesigning work so it provides increased satisfaction. As schooling is made more vocational it becomes more specialized and narrow, not alone in content and form but also in promise and in psychic return When work is substituted directly into education, it may make schooling even narrower and less promising, unless work itself provides the same sense of promise, or self-actualization. As organized, much of the world's work and many of the world's jobs do not provide either promise or realized self-actualization. The reform of schooling, within its limited objective of preparing for work, may first require the reform of work

Improvement of the material and economic conditions of work may serve to satisfy workers in the early stages of economic growth in developing countries. As workers grow accustomed to material benefits, some increase in the psychic return from labor may also be necessary. The solution could be to provide self-actualization through work itself. This seems straightforward, but since the causes of the failure of work to satisfy are many and varied, approaches to the reorganization of production and the redesign of work must be equally

varied (Davis and Lewis 1975). Trials of work redesign indicate that increase in self-actualization may come with greater autonomy in jobs, flexibility in routines, participation in decisions affecting work, and a sense of fulfillment from completion of specific tasks in the production of what workers perceive as a valuable product or the provision of a useful service.

In turn, jobs may have to be linked into career lines that provide greater promise of advancement and, within the links, greater self-actualization. How this can be done generally is not easy to specify. Changes that increase satisfaction for one worker may have no effect or a negative effect on another. Some workers may prefer the freedom and challenge of self-employment, and others may see in it only the risk of failure and, therefore, prefer security, anonymity, and the routine of a regular job. Whether a workers' paradise can ever be created in an open society is unclear.

7.2 *Summary of Policies for Developing Countries: A Short List of Imperfect Options*

Developing countries may find mobilization too extreme as a political and social option, even though it may hold the promise of insuring universal employment. Policy makers may instead choose manpower planning to hold down structural unemployment and monetary and fiscal policies to respond to demand-deficient employment. Other policies include encouraging the production of goods and services for the local market and the use of simpler and more labor-intensive technologies to maximize employment. Manpower planning and work-based education can then be applied to improve the fit of education to work requirements. Work enrichment, the fitting of work to workers, may at this time only be a problem for affluent countries. Work redesign and job enrichment and improvement may only be an issue for workers in countries where material benefits have been provided over such a long period of time that the benefits are accepted as a matter of course. If times grow hard in affluent countries, workers may count themselves lucky to receive material benefits. For most workers who are only entering the modern sector enterprises of developing countries, material benefits may serve as sufficient incentive for some time. Educational plans will continue to be based on manpower analysis and the improved design of work-related and work-based education. For policy makers there is a short list of imperfect options.

CHAPTER 11

Employment and Continuing Education: A Case Study of Self-Employment Training

RUSSELL G. DAVIS

1.0 *CYSEC The Calcutta Youth Self-Employment Center*

The CYSEC case is relevant to several themes in educational planning CYSEC was a project in nonformal education and training. It ran outside the formal school system. In curriculum, methods, and instructional setting, CYSEC was very different from other vocational training programs in the schools and training establishments of eastern India CYSEC was also a project in continuing education. The clientele were older youths who had finished their schooling several years previously CYSEC was planned to develop as a true continuing education program, in the sense that learners would attend for various training periods interspersed with considerable periods of work and business activity This pattern of alternating work and training was to last for several years of work life. The plan was also to create a career development sequence through education/training followed by work and business experience At the time of this writing of the CYSEC case this last programmatic feature had not been successfully implemented Many work-education program innovations do not come out as planned This was true of CYSEC

CYSEC is also important as an illustration of certain important methodological themes in educational planning These are covered in the form of generalizations at the end of the case, but the CYSEC case illustrates that

— The nature of nonformal education programs is varied The term *nonformal education* stands for many different things, and it can only be illustrated with many different case situations The planning of nonformal programs must be open and flexible to accommodate variation and innovation

— The nature of nonformal eduction programs and projects is situational Developments depend on the setting and the cast of characters Planning and program design must adapt to the situation and not force the situation to adapt to a set planning procedure

— Despite variability and situational peculiarities, planning does

help in situations similar to CYSEC, and for reasons shown in the case and stated in the conclusions. In open and sometimes chaotic settings, like Calcutta, planning is difficult to do, but essential. Nonformal projects, which are run in hard places and with minimal support, require a certain flexible form of planning.

— CYSEC can teach some lessons, but projects like CYSEC are not easy to generalize from, nor is it easy to generalize about how to plan them. No single case provides all the answers or any general answer. Each case — and it is hoped that the CYSEC case is no exception — makes its contribution.

1.1 *Background to the Case*

The Calcutta Youth Self-Employment Center trains young people for self-employment and the entrepreneurial development of their own business enterprises. CYSEC was founded in December 1970 by a group of Calcutta businessmen, bankers, and social organizers, and registered under the Registration of Societies Act as a non-trading (non-profit) enterprise. Specifically, the constitution of CYSEC states the principal objectives of the organization:

— to train young educated men and women in productive enterprises;
— to assist them in drawing up economically viable business schemes;
— to assist them in getting bank loans to found and start up their businesses; and in identifying and arranging markets for their services and production

By 1973 CYSEC had trained about 150 young men in twelve different production or service fields and helped about fifty of them to set up partnerships in fourteen small industries and service enterprises in Calcutta. By 1974 the number of businesses set up under CYSEC had grown to forty. An additional eight schemes had been approved for financing. A newly created women's business section had developed five schemes which were approved for financing The program, which had originally served educated young men from the middle classes, now had four urban training sites to serve the young men of the Calcutta bustees (slums), and two rural sites in areas surrounding greater Calcutta.

The numbers served, although impressive given the difficulty of accomplishing anything in the deep poverty and chaos of Calcutta, are still relatively insignificant when compared to the staggering figures of unemployment in Bengal. In 1972 it was stated that 3,000,000 young unemployed people were registered with the employment security office of West Bengal, and over half of that number had completed secondary schooling or above. It was also estimated, variously, that from 4,000 to 10,000 trained engineers were unemployed in greater Calcutta.

Labor market statistics were so bad as to be useless in Calcutta, but planners should note that when need is so apparent that it can be seen by looking out the window, no store of valid and reliable statistics are required for planning. The writer, who was working the streets of the bustees, knew that over half of the young bustee people were without work. In such a situation, data analysis is useless for planners. It can become an excuse for avoiding program development.

Calcutta had massive general unemployment and also massive unemployment of educated young people. Against this background of need, fifty small businesses employing somewhat over a hundred young entrepreneurs is far from a solution of the problem. Yet CYSEC is a response that has several features worth noting, and by 1974 it had developed into a model that had caught the attention of educators, government officials, industrialists, and development assistance agencies, both inside and outside West Bengal and India. Visitors were coming into Calcutta to look at CYSEC, and the model was being modified and extended for application in other areas. Several features of CYSEC are the result of the context in which the organization began and developed.

2.0 *The Background to CYSEC*

CYSEC began as a voluntary effort, created and sustained in its early days by what might at first seem an unlikely group from the standpoint of social responsiveness, the business and banking elites of Calcutta. At the time, the city was rocked by the violence of the Naxalite attacks which were staged in Calcutta by an urban guerilla wing of the Naxalite movement. This splinter Marx-Maoist groups drew its street troops from the educated middle-class youth of Bengal, the *badhra lok*, alienated not only from the political and economic life of their fathers who ruled, but deeply hostile to the high culture and deep roots of Bengali traditions. In the ensuing violence, the city Naxalites did hack to death the wife of the Consul General of France, but violence toward foreigners was a rare event, and most of the attacks went against Bengali officialdom and against some of the most revered Bengali institutions and individuals, for example, the school and cultural and social center of Shantiniketan founded by Rabindranath Tagore.

Businesses, whether Indian-owned or Bengali-run, were attacked in Calcutta, the managers harassed and *gheraoed* (surrounded by an intimidating mob), sometimes beaten and even killed. The motivation of the CYSEC businessmen in founding a youth directed program is fairly easy to trace. Most middle-class businessmen were scared. The form of the response, CYSEC, was somewhat unusual, although some might call it also predictable. Some voices were calling for youth mobilization and segregation into work camps. Others called for MISA (preventive detention) to clear the streets and fill the jails. Yet the

businessmen sponsors stayed with CYSEC, long after the immediate threat had disappeared. The Naxalite movement and the violence were stamped out in a few years, but most of the CYSEC development came as the movement and perceived danger waned. The rural wing, perhaps the stronger proletarian component of the Naxalite movement, was based in and around the tea plantation area of Naxalbarre, from whence the name of the whole movement derived. This group was splintered and later driven to ground when the leftist government (Moscow-affiliated Communists) of West Bengal threw in an army fighting unit, the Assam Rifles, against the guerillas and beat them. The actions of the urban, middle-class factions alienated their older relatives, and aided by ideological splintering and internecine doctrinal dispute, the movement was soon crushed. Under MISA, Maintenance of Internal Security Acts, meaning preventive detention, thousands of middle-class youngsters were swept up, and until recent years they were still warehoused around India in remote prisons

The Naxalite violence was only the most dramatic feature of the background to CYSEC, and it would be wrong to credit it with more than an original impetus for businessmen to do something more positive than to hire bodyguards and ride with the windows rolled up through the steaming heat of the Calcutta streets There was the deeper malaise of the whole West Bengal economy, centered on Calcutta, once the Pearl of the Empire of the British Raj in the East. From the time when the British shifted the seat of colonial government out of Calcutta near the turn of the century, the city had been declining, although there had been industrial growth in the years around World War I Before independence and partition, Calcutta was still a center of commerce and industry

Partition was another blow for eastern India, and its one central city, Calcutta, when the jute fields were placed in East Pakistan and the mills and port in Calcutta The long strife between Pakistan and India sealed the border to trade Few trade goods came over the line, but millions of refugee Bengali Hindus came, swelling the ranks of the aspirants to education and higher level employment in Calcutta Bengali economists also trace the decline to national government policies which drained revenues and resources out of the area for investments to balance growth in other parts of India All the while, urban services and the quality of life in Calcutta declined, the port deteriorated, there were floods and droughts, famines, epidemics and wars. Perhaps some notion of the enormity of the problems faced by Bengal and Calcutta can be understood from the fact that when the Bangladesh War came in 1971 1972, 10,000,000 refugees poured across the border into Bengal and flooded Calcutta, already one of the most crowded cities of the world This flood was dammed up in the salt flats outside the city in a vast puddle of humans

In the aftermath, Bengal suffered massive unemployment, the debilitation of industry and commerce, rising unemployment of

educated youth, and a general despondency which, in the case of the Naxalite movement, flashed from despair to violence. Unrest in the industries and the threat of violence only hastened the flight of industry from Bengal and worsened the economic and social plight of the region around Calcutta. Businessmen would add that hostile government policies, at both national and state levels, and the intransigence of politicized unions, added to a situation that became social despair layered on top of political chaos built on a foundation of physical and economic destitution.

3.0 *The CYSEC Response to the Situation*

CYSEC responded directly to the employment problem, although not at the level of magnitude that seemed called for. Programs to prepare young men for self-employment directly addressed the fact that there were more no more jobs for young people in government or in the organized private enterprises traditionally open to educated Bengalis. Bengal had gained an earlier start in education over many parts of India, and this was an advantage in civil service and government employment in the later years of British rule. With independence there was more effort to equalize these employment opportunities for Indians from other areas. Yet customs and expectations among the Bengali cultured class, the *badhra lok*, did not change very much. Lacking job opportunities with national and state government cadres elsewhere in India, the state and municipal government rolls in West Bengal, and in Calcutta, became enormously swollen, so much so that efficiency was reduced and a round of harmful second-order consequences was propagated through the economy. Businessmen would state that the more government employees there were to interfere in industry and commerce, the more industry and commerce declined, and with the decline came declining employment opportunities in the private sector. The writer witnessed one businessman paying three different bribes to untangle a maze of regulations which prevented access to a credit scheme sponsored by the national government to "encourage" business enterprise.

When government employment declined, Bengali young men sought to prepare themselves for managerial and professional opportunities in private business, but the economic decline and the expanding education industry meant that these jobs were soon filled. The legislated social benefits for workers, which could not be paid for with declining productivity, also led managers to cut payrolls. Labor unrest and the inflexibility of the unions contributed to the problem. Under rigid union procedures, backed up by militants and supported by government weakness, industrial managers could not shift organized workers into new jobs and new work patterns to meet new market demands and to fit new technology. Once a worker was on the payroll and assigned to a specific job and work norm he expected to stay there until he retired,

and then to force his son into his place. Companies not only could not transfer or fire, they were stuck with worker families for generations.

Firms had to fire or close down. Rather than add workers to their own payrolls, the larger and more organized industries preferred to buy from suppliers and thus let small enterprise owners or managers cope with the workers and their unions. The CYSEC stress on self-employment addressed this potential market. Employment could be created, but to do so businesses had to be created. CYSEC did not set out to train young people for existing jobs, but to create small businesses which would provide income to their owner-workers.

Bengali youths were not by tradition drawn to entrepreneurial risk, and hence had to be trained not only in production skills but also in enterpreneurial attitudes and management skills. They had to be counselled and supported in the lonely life of starting a small enterprise. Evidence indicated that their preference was an educational credential which entitled them to a safe, salaried job in an organized enterprise. Hence, though CYSEC responded to a background need, employment for the educated youth, it did not respond to an expressed demand by the purported clients, the young men. This is common in developing country projects, but it seems ironic in the case of CYSEC, which later put so much stress on first assessing market demand for goods and services before establishing training for small enterprises.

CYSEC also responded to the education situation of Bengal. The huge unemployment problem among educated youth has been mentioned. Yet the schools continued to turn out large numbers of young men trained from the highest graduate study levels down through skilled workers. The employment records of education and training institutions was poor at all levels in Calcutta. The Junior Technical Schools, run by the Ministry of Education, were lying in place, and enrollment had slipped to one-third capacity in just a three-year period around the time CYSEC was established. With enrollment declines came deterioration of plant, equipment, program, and instructional staff.

Training for manual skills was not popular in the culture in the first place, and it was avoided when it did not lead to the one thing it promised — a job. Polytechnics and university schools of engineering were better equipped and staffed, but their employment record was little better than the Junior Technicals. The Industrial Training Institutes, run by the Directorate of Cottage and Small Scale Industry, (CSSI), and conceived of as an alternative to more formal schools, were themselves already bound in to training for overcrowded fields. Institute programs prepared workers for jobs that did not exist. In 1972 the Ministry of Education was hoping to hand over its technical schools to Cottage and Small Scale Industry; and at the same time the CSSI was suggesting that the Ministry of Education take over their Industrial Training Institutes. Higher education, as exemplified in Calcutta and Burdwan universities, was in turmoil, and where it functioned at all, as in Jadavpur University, the only outcome was the

smooth and continued production of unemployable graduates — in all fields.

Dr. D——, a professor of physics at Jadavpur University, who was later to try to influence the programs of CYSEC toward innovations, described his own experience in a proposal to the CYSEC Board:

"I was a scientist and teacher, first, not an entrepreneur, but for many years, turning out brilliant boys who had no prospect for employment I was finding it discouraging, and I was dissatisfied with my work. Recently I have started an electronic industry myself with financial help from the State Bank of India. When I started manufacturing activities myself . . . we set up a number of vendors who would supply certain components to us like sheet metal casing, plastic moulding, printed circuits and various other hardwares. I then collected a number of boys (his former graduates), trained them, and in some cases helped them with necessary finances . . . My vendors have created a total employment for about 15 boys, with a per capita income to each vendor of Rs 400 to 500 a month." (At the time the rupee was worth about 14 cents U.S.) (Proposal to CYSEC Managing Committee, March 1973).

CYSEC was timely because it responded to the need for creating, rather than training for, employment; it responded in a different and more effective way than existing schools, and it fitted into existing government programs for supplying credit through state-owned banks, and supervision through national and state government organizations charged with fostering small industry. Without existing programs for credit, CYSEC could not have operated, for it did not itself have any loan funds for starting off entrepreneurs after they were trained CYSEC, very early in its existence, did receive some government help, a grant of Rs 1 lakh (about U S $15,000) from the national government's Ministry of Education, then concerned about the employment record of traditional schools and ready to support new and different training enterprises At the time the government grant was made it was more an expression of faith in an idea than a reality. For India, CYSEC represented a unique partnership between private voluntary initiative and government programs CYSEC kept close to government programs and used them to supplement limited resources wherever possible

4.0 *Early Activities of CYSEC*

In the selection of training programs during its early existence, CYSEC showed no impressive signs of innovation A group of the businessmen-founders sat down and listed some obvious enterprises which could be started, many connected with their own fields. From a large list of possibilities a few were selected as within the resources of the CYSEC program air conditioning and refrigeration, cement products, plumbing, tire repair and recapping, spray painting, wood pro-

jects, welding, wiring, and electrical servicing. Wheat grinding, a bakery, and a piggery were other enterprises studied, in order to earn funds for CYSEC, and not as business schemes for trainees. Some of the first generation selections were quite unsuccessful and were closed down or modified; for example, wood products and painting were combined into a specialty of toy-making. Cement products, without a market, foundered. A paper box enterprise stumbled onto a market and prospered. So did a project to re-use left-over plastic.

Market was not the only problem. Social and cultural biases affected success as much as economic prospects. The urban youth showed little taste for the piggery and chicken projects, although the market was strong enough to keep the enterprise going as a CYSEC institutional, for-profit activity. Plumbing showed promise, but there was little taste for being what some young men may have considered a "sweeper with tools," a very low-status job.

Businesses were unsuccessful for many reasons that were neither economic nor technological. Some partnerships were successful as long as an assured supply of advanced orders was promoted by CYSEC officials; but when orders slackened the young men would not get out on the street to get more, and the business declined. The compatibility of partners was important, the best combination being an inside man with skill and interest in production and an outside man who would promote credit and sales. Start-up and working capital were always short. One of the most significant determinants of success of partnerships was trust. This had to exist or be developed and sustained, or the partnership dissolved. One weakness of the CYSEC program was that the families of the men were not centrally involved in the early months when the young men needed encouragement. Some of the cultured families never accepted the stigma of educating children for long hours of hard and dirty work.

One important characteristic of CYSEC and its operations emerged early. Enterprises were tried, and if they did not succeed they were changed or dropped. The problem of rigid and inflexible commitment to staff, plant, and equipment, plagued the official educational and training institutions. CYSEC was far more flexible, partly because of limits on operating funds and fixed investment and partly as a reflection of the somewhat entrepreneurial characters of the members of the Managing Committee, particularly the dynamic leader of the Committee.

CYSEC plunged into many things and succeeded in a few. The limited resources were themselves an advantage because CYSEC was forced to accept shelter in the compound of a mission school complex in Calcutta. The director of the school, a missionary, became a strong advocate of CYSEC, precisely because his own vocational school, a well-equipped and formal program in machine trades, was so unsuccessful in placing graduates. Fortunately for CYSEC the mission vocational plant was not made available, and all training activities were

housed in several small sheds, some built as temporary shelter for a specific activity. When an enterprise was closed, the machinery was taken out of the shed, new equipment put in and the sign on the door changed from cement products to toy-making. There was no large investment in equipment or plant to prevent changing to a more promising line of activity. Teachers were part-time.

CYSEC later considered a proposal to give the training equipment to the last cycle of entrepreneurs to finish a program which was scheduled to be shut down. The notion was that this equipment would be amortized out of the earnings of the business established by the graduates. In other cases, equipment such as lathes and plastic injection molding machines could be adapted to training in different lines from the original program.

5.0 *CYSEC* Develops

Later, planning for CYSEC training became somewhat more systematic but, throughout, ventures were begun that were unsuccessful and short-lived. The virtue of the arrangement was the flexibility forced on CYSEC by a lack of resources for investment in plant and equipment. One other feature, again born in poverty, added to CYSEC flexibility: often CYSEC had to borrow the use of premises and equipment from outside enterprises. Hence, CYSEC trained in dispersed sites and within industry, not as a matter of deliberate policy to maximize the reality of the training, but because it had no resources to do otherwise. Later this was recognized as a sound policy which enhanced the attraction of the training for participants and also enabled them to make job and business contacts. This feature was incorporated as part of the program. As one example, trainees in the tire and tube repair program were accommodated at the repair shops of Public Works, because CYSEC could not afford the equipment for handling large truck tires. There were a variety of other similar arrangements at other shops and enterprises, some arranged through business connections of the members of the Managing Committee and others simply scrounged through the efforts of friends and supporters of CYSEC. Some CYSEC officers opposed this practice on the grounds that it was difficult to maintain discipline at multiple sites.

CYSEC also had considerable flexibility because of the nature of its training staff. Most were not trained instructors but skilled workers or businessmen who were paid a small fee for their teaching services, or who offered their services free. Some were recruited directly out of industries and kept on only for as long as the training program for that enterprise lasted.

It was the policy of the Managing Committee to seek help from any and all sources, through formal and informal contacts in the business and social development communities of Calcutta. This provided considerable program coverage at reduced costs, and flexibility for adap-

tation to changing circumstances. It also made the systematic costing of CYSEC inputs by analysts and planners a meaningless exercise, inasmuch as conventional costing failed to capture the enormous amount of informal and voluntary effort contributed to the project. Hence, if CYSEC were to be replicated elsewhere it could not be successfully accomplished at a fraction of the official budget, because the activity consumed a vast amount of very high-priced talent offered on a voluntary basis. Indeed, it was this kind of activity that accounted for CYSEC success and not solely the instructional and support services of the small paid staff. This point should be noted by planners. The writer once estimated that if CYSEC had to pay consultant fees commensurate with worth of services rendered to the Executive Committee of the Managing Committee, which met for five hours every Sunday morning, the cost for one weekly meeting would have equalled the entire CYSEC operating budget for one month. The services were, of course, donated, as were thousands of hours given in phone calls, business luncheons, and casual meetings by the committee members. CYSEC accepted services from everyone, including those of the writer who served as an unpaid planner in the developing stages of the project.

Whatever the merits of flexibility through informality, as CYSEC grew, program planning had to become more systematic, so that product and service lines would at least last through a few training cycles.

One of the first evolutions in CYSEC was the development of new fields to replace old and failed program initiatives. Here Dr. D____, the physicist turned entrepreneur, made valuable contributions. (Remember that CYSEC management would accept help from any source, and solicit such help when it was not forthcoming.) Dr. D____, suggested that CYSEC broaden training enterprises away from small services and increase the emphasis on industrial production. He pointed out that there was a strong market for suppliers of industrial components, especially in the electronics field where large companies bought from suppliers and assembled the final product. (See the background discussion of CYSEC.)

Dr. D____, who knew the technology and market demands of the electronics industry, was able to identify a large list of items for which there was strong demand in the market of Calcutta. He furnished one list of 26 end products: wire wound resistors, glass cartridge fuses, plastic and sheet metal casings, plastic knobs, fasteners of various kinds, multimeter test prods . . . He organized the list of 26 items into 6 major production/training fields (1) metal finishing (stove painting and electric plating); (2) decorative finish and printed circuitry (silk screen printing); (3) plastic molding (injection molding) . . . He then developed a list of equipment for training and production, and introduced the notion that the training should and could be based on production carried out in support of CYSEC itself. Thus, he proposed that CYSEC enter into industrial production.

As CYSEC moved into more complex technology and marketing

situations, it became necessary to do more systematic market analysis within Calcutta industries to seek market possibilities for small suppliers. An economist was added to the CYSEC staff, as a part-time analyst, to aid with these studies. Technology specialists had to be added to explain the products, rationalize the production process, and develop the combined production and training programs. In many cases the industries were willing to aid in the effort by providing detailed descriptions of the process, quality control standards for the product, inspection of the output and suggestions for reorganizing the process for small labor-intensive production. CYSEC became more technical, but still without losing its sense of social mission which was so important in securing the cooperation of volunteer helpers.

It was also necessary to strengthen the staff, who assisted with accounting and management training. These teachers helped the graduates to develop the economic analysis that would support the schemes presented to the credit sources, which in Calcutta were the state-owned banks and government and small-industry assistance programs.

Though CYSEC work was becoming more technically complex, it also become more socially conscious, and the committee realized that outreach to needier groups was limited, with most of the benefit going to middle-class, educated boys. In partnership with social workers, CYSEC sought to open its programs to boys from the poorest areas of the city. This required adding social and community organization capabilities, again mostly through volunteers It was not simply a matter of advertising that the opportunity existed and then awaiting a massive enrollment of poor boys The boys had to be reached in their own bustees (slum areas), and the program explained to them Some boys would only come out and participate in groups or gangs. They had to be encouraged to venture out of areas dominated by their own gangs, and it was often necessary to enroll groups rather than individuals There was also a need for constant follow-up of these boys as they tended to come one day and disappear for several Counsellors had to mediate for real or fancied insults which were a product of social distance between the boys, the instructors, and the businessmen

Subsequently, it seemed sensible to locate some of the training sites directly in the bustees Many of the groups had a strong dedication to the general community good They had less interest in profit for individuals and partners They wished rather to run community enterprises that would benefit their associations and total memberships rather then individual entrepreneurs. One enterprise in plastic injection molding was started in the back room of a "community association" in a poor bustee Eventually there were four bustee sites for training and production. Local sites responded to the problem of lack of mobility among the poor, because of scarce transportation from slum areas, communal fear of venturing off the home turf, and the in-

consistent attendance and work discipline of young men from deep poverty areas.

6.0 *Technical Assistance to Bustee Businesses*

In some cases the staff of CYSEC served existing bustee enterprises, not so much in providing training as in providing business advice and counselling, and most importantly, in making contacts with bankers and other sources of credit for expanding existing small bustee enterprises.

A huge social distance separated the bustee entrepreneurs from the bankers and their technical analysts. It was frustrating for CYSEC counsellors, who accompanied the small businessmen from the bustees, to sit while the bankers picked apart the credit worthiness of a scheme which was running in a bustee context of which the bankers knew nothing. The bankers' engineering associates demonstrated their entitlement to a steady salary by picking apart the technology of every scheme. One experienced bustee baker who was switching from oil-based products because of the huge price increase in oils, to dry baking using traditional ovens, was dumbfounded when a wise banker turned down his scheme on the first pass. The bank economist did not think that the street vendors, who had sold the oil-based bakery products on consignment, would know how to sell the dry baked goods. Otherwise, the scheme was perfect, the banker said, and the man should go back to the drawing board and figure out how to develop a sales force of dry baked goods vendors. The counselling staff had to prepare a seven-page paper, filled with economic jargon to put this objection, mad as it was, to rest, and to secure the financing Months were lost. CYSEC illustrated the point that running such a scheme required large amounts of skilled staff time to write technical proposals, to counsel fearful participants, and to transport and set up shop equipment.

Another advantage of locating enterprises in the bustee was the demonstration effect for many more young people who would never have seen what was going on had it been staged outside. In later stages, CYSEC blended increasingly complex technology with a heightened sense of social mission. The bustee program brought tensions that were both creative and disruptive, and many of the staff protested the indiscipline of the bustee boys, the softness of the social workers, and the "waste" of space and time on unpromising businessmen Other staff members were rewarded by the increased opportunity to serve new groups, such as poverty groups, different religious communities (Muslim), and linguistic groups (Urdu-, Oriya-, and Hindi - speaking people). In most of the training program Bengali was the dominant language of instruction, with occasional mixtures of English and Hindi.

7.0 *Other Program Developments*

Another form of outreach, in addition to the programs serving bustee groups, was to broaden the coverage from exclusive service to males and to include women's programs. The impetus for this came from some of the wives of the members of the Managing Committee and from some of the social workers, predominantly women. Progress in developing women's activities was slow and relatively traditional in the selection of fields. Sewing and clothing design and assembly were the early activities, as well as food preparation. Some advisers tried to point out that electronics was a promising field for women, that in fact many industries in the developed countries hired predominantly women for such work, but this line was resisted. As of 1975, the women's activities were primarily traditional in food processing and preparation, and the needle trades.

A final development of CYSEC was in pedagogy and the rationalization of training At the time of the close of this report, in 1975, the training had not developed along the lines first envisaged by the planner The plan was that training would be based on market studies and the identificaion of products and services needed. When the field was saturated, CYSEC would move out of it and start up new products and services This worked, but with some lags in closing down programs and projects that were no longer in demand or viable.

Previous sections mentioned the plan to alternate periods of training and business The participant would be trained in a specific product, perhaps going out to manufacture and sell this product, and later returning for training in some similar (in the technology of the process) product Over time, the trainee would attain mastery in the production of several products and eventually mastery of a field It was pointed out by Dr D___ that this was the way master workmen were developed in industry, and that there were advantages to spacing the learning and practice, rather than massing it in some synthetic approximation of a training-to-production relationship A training concept such as this would have required great flexibility in CYSEC scheduling and instructional organization, and the directors of the instructional program did not agree with the concept

As of 1975 CYSEC still operated a single training program per individual Once participants had learned the process and established their enterprise for production or service, they went out and did not return for further cycles of training Still, a continuing contact was maintained between former participants and the counselling and support staff who continued to counsel partners and assist with marketing and business contacts An evaluation of CYSEC, through a questionnaire administered to former participants, was made in 1974-75, and participants reported that what they most wished in continuing support was assistance in enterprise management and marketing CYSEC was attempting to provide this as the time period covered in this case ended early in 1975.

8.0 *Planning and CYSEC: A Retrospective Appraisal*

The flow of a case narrative often suggests that a project has developed smoothly and without major problems and discontinuities. Those with experience in the planning, design, and development of eduction/training projects know that the real world is not that way. The best-laid plans go wrong, and in some cases unplanned program features take hold and become successful. This should not suggest that planning failed in CYSEC or that it would fail in similar projects in nonformal and continuing eduction. This final section is designed to correct this misconception. Planning was useful and often productive in the CYSEC situation, and it can serve in similar projects in nonformal education and training.

In summarizing the contribution of planning in the CYSEC case, and in similar situations in nonformal and continuing education, the generalizations would be:

1. *The Beginning Stages of Planning* Nonformal education/training projects are by nature varied and unstandardized because if they are to succeed they must fit the particular circumstances in which they are found. Hence, overly standardized planning formats may not serve as well in the early stages of project development, and planning may even be counterproductive if it means imposing narrow objectives, overly specific means and routinized approaches on emerging situations, where ramifications are still unclear. In the early stages in the planning of nonformal education programs similar to CYSEC, goals (to increase income through creation of employment through creation of small businesses) can be stated and pursued in general terms without specifying objectives, means, and even resources too narrowly. Planning should begin in broad terms and become more focused over time If the problem addressed is severe enough, data to prove needs are superfluous.

2. *The On-Going Process of Planning* Nonformal education/training projects, if they are to develop and prosper, must have flexibility and adaptability. To insure flexibility, however, requires more planning and not less. Planning here means envisioning numbers of possibilities, and sketching of a number of alternatives. It does not mean an exact and detailed specification of every step in a process which cannot be foreseen in such specificity It is precisely the more routine and standardized forms of formal education that require less planning, because things have settled into such routines that they need only be managed CYSEC and similar situations illustrate that the less routinized the project the more planning it requires

3. *The Social Environment of Planning.* An informal social setting is best for planning CYSEC types of education and training programs.

Informality in the setting, the social process, and the behavior of the planner is essential. This does not imply unsystematic planning. In the CYSEC situation the following features were important:

— The main planner over the period of developments described in this case held no formal post as a planner or even a formal post in the organization.

— The main planner was a member of the Managing Committee and its Executive Committee and, as such, one of the participants and contributors, just as the other businessmen who served on these committees.

— The main planner was perceived as a technical specialist by the other committee members, and though they deferred to him on some technical matters, they did not defer to him at all in authority and responsibility This relationship had to be worked out It was nonhierarchical and nonformal in organizational form The planner was a volunteer, as were the other committee members He approached disagreements over programs knowing that he would lose arguments, and he lost a good many The positive side was that there was no reputation or status at risk The same themes could be argued again and again Nothing was final

4 *Required Planning Analysis Will Change as Project Matures* Nonformal education programs of the kind exemplified in CYSEC will become more complicated and sophisticated over time In the first place they grow larger, more money is involved, and accountability becomes necessary The business ventures also become more complex, because the simple and obvious possibilities get taken up and accomplished As the situation gets more complex there is a need for more highly competent technical planning to cover

— General surveys of business conditions and identification of markets for specific products and services Without market analysis and planning there can be no project growth Such projects must grow and change or disappear entirely Growth and change require planning.

— Analysis of the technological requirements (inputs, processes, production and management organization, standards) of the potential enterprise

— Analysis of the economic prospects of the enterprise (costs and pricing relative to production and scale, possible profits, credit,)

— Analysis of the training requirements for the enterprise, and of the business assistance and support required over the start up phase of the enterprise

— Linkage of new enterprise with existing businesses started by CYSEC and with other training and small business creation enterprises.

— Maintaining a sense of innovation and enthusiasm in the project

over time. This requires planning to foster change and spontaneity.

— Maintaining a sense of social purpose and dedication. The enterprise was not simply for the purpose of making a profit. It had to strive continually for social outreach to other groups not favored in the early project phases (slum youth and females and members of underprivileged community groups . . .)

Hence, a project like CYSEC becomes more technically complex and thus requires more planning rather than less. It becomes more socially complex and this also requires more planning rather than less.

9.0 *Conclusion*

The best way to understand planning in a project such as CYSEC is through a case narrative that is not overburdened with data and abstract generalizations The flavor of the unique situation must come through. Systematic assessment is for a later stage.

At this moment in the appraisal of the CYSEC experience there is some sense of frustration because generalizations do not emerge easily from the planning experience. Perhaps this is as it must be in nonformal education and training The record is unclear as yet. Only an extensive review of case experience will permit a judgment.

CHAPTER 12

Goals and National Purpose in Planning

THOMAS WELSH

> A State which dwarfs its men, in order that they may be more docile instruments in its hands even for beneficial purpose — will find that with small men no great thing can really be accomplished
>
> (John Stuart Mill: *Liberty*)

1.0 *Introduction*

Societies are ceaselessly attracted and repelled by the alternating forces of stability and change. To yield completely to either extreme can result in the decline and destruction of the very values and institutions which the society wishes to preserve and enhance. The modern society attempts to address, and cope with, these conflicting forces through the process called planning. There is no definition of the planning process which satisfies all persons and governments, variety abounds. This variety results in fundamental differences in both the purpose and emphasis of planning. Even within a particular society there will be distinct divergence of opinion on the goals and national purposes addressed by plans and served through planning.

This paper is an attempt to place the planning process within a historical perspective, to consider the influences which have informed the actions of individuals called planners. It argues that the process of planning is not a disembodied happening but represents the volitional attempts of informed and professionally trained individuals to resolve the tension between stability and change. The actions of these individuals is not informed exclusively by technical definitions and techniques, but is greatly influenced by their moral opinions concerning the Good Life.

The planner must not only be aware that he is making moral judgments, he must also know the source of these views. He must be sure of his personal grounds for such views, and also the source of these views as expressed in the society where he works. These moral

judgments are expressed in what are called objectives and goals. Embodied in such statements are the value judgments of the individuals empowered to make them. These judgments are not merely technical or mechanical, but are grounded in a philosophical view of the contemporary world, coupled with future aspirations for that world.

While the initial sections of this paper will consider the problems and choices confronting the planner, the latter sections will be more practically directed. National Goal statements will be examined for their implications for the guidance of the planner and his client. It will be postulated that there are comprehensive statements of national goals and partial statements, and that the differences have fundamental consequences for the society formulating them. The term *society* is used as a proxy for the properly constituted power and authority.

Informing this consideration of the planning process and the role of the planner are the author's own value judgments: a central view is that planning can only take place in a society where there is acceptance of the free exercise of individual volition, and this volition must be free to inform and guide the process of choice in respect to goals and objectives. A society that denies this will not engage in planning, but limit the process to imposing control in the interest of management. Such a process demands that man direct his life toward establishing congruence with some reified notion of history which is out there and beyond his control. More fundamentally, it assumes that the process is *per se* good. This is not planning.

1.1 *Social Objectives: A Persistent Concern but an Ever New Problem*

What are the ends of society? How are these ends to be achieved? Swiftly written, even more swiftly spoken, but after almost three thousand years the questions have no universally accepted answer, though in the history of Western civilization there is an intellectual tradition which has persistently grappled with these questions. Connections from present mega nations back to the argumentative academics of the Greek cities can be traced and delineated (Copelston 1955).

One tributary to this stream of inquiry flowed from considerations of the Grand Ends of man -- the final purpose of individual and social existence. A more recent tributary arose in attempts to approach the question from another perspective, that of defining the means to achieve the Grand Ends. Though the major currents flow on, there have been persistent shifts from grand theory and metaphysics to immediate and practical implications.

No matter the course chosen, in the search for answers the same basic aids of inquiry are still being used: reason, research, idealism and imagination. The history of the search shows three distinct phase lines. The first of these reached from the Greek City State period to seventeenth-century European thought. The transition went from

Saint Augustine's, "I think, therefore God is," to Descartes, "I think, therefore I am." This initial tradition assumed that the ultimate End of the individual, and therefore of society, was to be found in God, and that all intermediate objectives of the individual and his community should lead to this End. This was never a mechanical process; it assumed that man could define the Ends and then order his journey in accordance with them. Inquiry was primarily informed by the primacy of metaphysical thought; it was teleological.

Cartesian thought in the seventeenth century shifted the mode of inquiry away from the metaphysical to the sentient, physical level. This shift led to the opinion that certain problems could not be resolved by tradition or by available modes of inquiry, but could only be a matter of Faith. The effect was to move the focus of inquiry from the level of philosophy to that of science (Fremantle 1954). The teleological tradition was not rejected but judiciously suspended. This period proved to be a mere transitional stage, preparing the way for the emergence of a new paradigm that would seek to vitiate the teleological tradition of the West:

> That which struck the present writer most forcibly on his first perusal of "The Origin of the Species" was that conviction that teleology, as commonly understood has received its death blow at Mr Darwin's hands.
> (T. H Huxley)

Thus, the third track of Western inquiry, positivism, emerged. This mode of inquiry holds that all that is required of man is to "classify facts, recognize their sequence and relative significance" (Pearson 1901). Pearson, one of the definitive spokesmen for Positivism, was the formulator of the statistical tool, The Pearson Correlation Coefficient. This insistence upon identifying regularities and relative significance led to the modern tools of statistics, not to mention their abuse (C. W. Mill 1959). Pearson also contended "the logic that man finds in the Universe is but a reflection of his own reasoning facility." The purpose of Western thought was shifted from a consideration of the divine purpose to the acceptance of the cosmic purpose incorporated within evolution; man became the center of his own inquiry There was no Grand End outside of man himself Scientific thought was accepted as human progress

These conflicting directions of inquiry in the West, the teleological versus the positivist, effectively frame a basic contrast in ideas about the process of planning and the means by which planners are trained Modern planning has been dominated by the positivist school of thought, which bases its methodology upon the identification of the regularities to be found in social behavior. A current perplexity is rising to challenge this dominance — it is proving almost impossible to justify the presumed connection between the *is* of the scientifically described regularities, and the *ought* of the ethical life of any society.

If the planning process and the planner persist in assuming that society is to be shaped according to observed and measured regularities, then any persistent and dominant pattern of behavior automatically becomes accepted as *good*; goodness derives simply from persistent and general behavior. This is tantamount to declaring that the means justifies itself, and denies any restraining principle other than evolutionary survival and persistence. Social objectives cannot be so mechanical or devoid of ethical grounding; the *is* cannot be equated with the *ought*, unless one accepts the vitiation of the exercise of human volition.

"I would rather be wrong with Plato than right with such men as these." (Cicero: *Tusculanae Disputationes.*)

2.0 *Objectives: Essence, Form and Source*

A statement of objective lays out what is intended to be realized via a selected course of action. This can be expressed either as a *Product* or an *Action*. A Product could be the construction of a new school, while an Action would be understanding or appreciation. Planning frequently represents a mix of these two basic kinds of objectives. A planner has to accept that statements of objectives are not self-contained or bounded by themselves. The passage of time may change a statement of ends to a statement of means. A statement presently seen as a means may once have been an end which has now been achieved through prior action. It may become an active principle for future objectives. The planner selects a point of intervention and initial inquiry which interrupts a chain of causality, and this alone enables him to speak of means and ends as distinct notions (Aquinas 1956). Thus, universal primary education may be a present objective, but it is an active principle in respect to other developmental ends. Universal elementary education, the stated objective of many societies and their governments, may be the active principle supporting a further objective of rural development. Rural development may require a base of popular literacy and numeracy and the spur of a cadre of social activists such as teachers. This in turn could require the formation of a teacher education curriculum designed to produce teachers who are rural development animators. Thus rural development can be set in motion, but this in turn will be directed to other Ends, and the ultimate objective may be the full participation of all individuals in the rights and duties of the society. Within such a sequence of means, which are seen as contemporary Ends, the final objective will be the touchstone for the evaluation of all intermediate objectives and actions.

2.1 *Objectives. The Process*

There is a distinct process which any person, including a planner,

uses in expressing these objectives in reality:

- The Grand End is perceived with sufficient definition to inform action.
- The planner considers the chain of causal events among the means.
- He considers that there are some particular means that he can act upon here and now.
- He selects the means that present themselves as practicable here and now.
- He does the act in question (Aristotle 1962).

This process is not mere causal model building but is in fact dictated by the perception of the Grand End prior to embarking upon the process. This prior perception both directs and limits that which can be validly included in the process as means It is no mere movement from one objective to the next, on an *ad hoc* basis dictated by the presently observed behavior of the society and individuals.

This process is justified because of its appeal to general common sense It represents what one might think that any rational individual would do It does, however, have a critical problem embedded within it. This is contained in the first assertion that the Grand End is perceived. For the planner, perceiving and declaring the Grand End poses a considerable challenge Planning theory, with its positivist bias, assumes that objectives can be derived by technical examination of the situation under consideration, but the Grand Ends of any society are not merely technical descriptions of an inevitable occurrence When a planner examines a situation and formulates Ends he is usually not formulating the Grand Ends of the society, but addressing secondary or intermediate objectives By the application of his techniques he is examining the best selection of the point of intervention

The choice of best point of intervention is not the result of technical analysis but derives from weighing a planner's statement against the prior statement of the Grand Ends of the society expressed through the governing authority and the organic law Thus, the planner's statement of objective must be evaluated against the will and intention of human actors In a social process this is expressed in the aspirational ideology, which is a prior appreciation of what ought to be the rules and directives of the society Once this is established, then other objectives can be formulated, examined, rejected, or established

The general objectives of a society are not mere empirical, logically constructed notions abstracted from comtemporary regularity, but are ethical declarations from which all other objectives and means flow. If this were not the case, all societies could dispense with the political process and depend upon programmers. Because there would be no argument about the purposes of the people or the society,

societies could settle for programming, simply ignore any question of Grand Ends and direct the people's attention to the secondary means as revealed in persistent behavior. Such is government by *ad hocism*. In the process of such governance the Grand Ends would wither and die, and mere persistence would replace the tension between stability and change.

This should serve to draw the attention of practicing planners to their role in the expression of objectives within social planning. The process of social planning will always be complicated and irregular when it depends on the expression of the social will with respect to the desired ends of the society. The social will is not always that expressed by the empowered and ruling group, the government, but may also be reflected by opposition groups and their alternative expressions in the society.

When formulating objectives, the planner cannot skip all consideration of Grand Ends to get to means When the planner attempts to ignore end and go directly to means, the future may bring difficult conflicts in the implementation of national development goals. Consider the notion of development which has informed much of the opinion relating to the Middle East. Here Islamic teaching based upon the Qu'ran provides the final objectives of society. For Western planners to enter and advocate educational development that ignores the Islamic conception of family and the role of the woman, is to ensure the lack of implementation. Any secondary level objective of the planner, formulated on the basis of his Western positivist model, will be rejected. It does not change the situation to appeal to the regularities observed and charted in the process of Western development, because these are not grounded in the same perception of the Grand Ends. Attempts to impose Western-dictated notions may eventually result in the choices that were made in Iran All planning must address the first step of the process, the perception of the Grand End, and all planners must realize that this goal is informed by influences and beliefs which transcend technical descriptions.

2.2 *The Planner and His Central Role*

Once planners approach the second step, that of considering means, there is an important consideration for addressing the formulation of objectives. There are two basic vantage points from which to examine the planner's role in the formulation of objectives. The first of these is to view the planner as essentially a technician, an amoral mechanic. The assumption is that the planner's repertoire consists of mechanical responses to the client's declarations of intention and objective. The client tells the planner what he wants to achieve, and the planner suggests ways to achieve objectives within the constraints of resources and time.

This view of the planner is founded upon a stereotype that planning is

a mechanical process conducted by mechanical men who are merely instruments in the hands of the client. This view of the planner will not stand up under test. Any individual, whether a planner or not, must always act intentionally. This intentionality will be informed by a personal notion of values and a perception of desired ends, even though the planner is taking on a technical job. The planner is very much an agent and is active because his intentionality and volition are engaged.

A second view is to consider the planner to be an agent actively participating in the formulation of objectives, with and for the client. This view holds up only in restricted conditions. First, the planner does not formulate Grand Ends in his role as a *planner*. The Grand Ends of society are the product of political process and the organic law of the society. Secondly, the planner's role in the formulation of secondary objectives is limited by his connection with an agent or agency of the government, which is delegated and limited by organic law. The planner can only act within these bounds; but these limitations will not reduce him to mere instrumentality, for he must exercise professionally informed volition in the selection of the best advice he gives to his client

This is not exclusively a technical matter. The technical is transcended in social planning through the interaction of Product and Action ends. Social objectives automatically incorporate dimensions of both categories of objectives. The Product objective will always pose choices embedded in complex sociopolitical considerations. The planner must make choices here, and these choices, once made, become active principles for future objectives, as indicated earlier. The same will hold in the case of Action ends. An important feature is that the choices are represented by an open-ended set which is then closed by an imposed decision The imposition is the result of both resource and time constraints.

The outcome of this is to impose upon the planner a role which is much more than a mere technical and mechanical function "Every action and movement are for the sake of some perfection Even if the action itself be the end, it is clear that it is a secondary perfection of the agent. But, if the action be a changing of external matter, it is obvious that the mover intends to bring about some perfection in the thing moved." (Aquinas)

The mover "intends" is the key to the planner's role as an agent. Because of the planner's intentionality implicit or explicit, he acts as an agent in the formulation of objectives

It is critical to examine how the intentionality of the planner works in actual fact It is frequently implied that the planner should have a one-for-one correspondence with his client in respect of ends both primary and secondary This condition does not arise from any attribute particular to planners and planning, but is a manifestation of modern economic activity, wherein the demands of the specialization of labor do force an individual to seek an employer or establish his own enter-

prise. In the selection of an employer a person cannot hope to have total congruence between his own value system and that of his employer. Some measure of accommodation is demanded.The role limitation which comes into force is that the employee cannot enter a relationship which totally contradicts his own value system. The same limits will apply in the event of a client who contracts another agency to provide planners.

2.3 *Other Roles for Differing Forms of Planning*

We have considered the planner as an agent in terms of the formulation of objectives. It is useful to extend this examination to the other roles of the planner. Planners can be said to operate at three different levels of activity; organic planning; political-administrative planning; and administrative planning (Davis 1977). This paper will not examine these levels in detail but simply draw attention to their existence.

Organic planning requires the analysis of the *principia media*, the broad social currents emerging in a society (Mannheim 1949). Here planners must work within their own society and culture to pinpoint the emerging forces in society which are then evaluated and reported against the organic values of the society. They are the watchdogs, protecting organic values. This level of planning is not common in the contemporary Western world although Mannheim did advocate it strongly, and in fact this was the end purpose of planning for him (Manneheim 1949, 1951).

The administrative-political level of planning is what has been primarily considered in this paper to this point; the planner is an agent responding to the intention of a political master or patron. Two tasks confront the planner. First, he must establish congruence with the political intention of the client who appointed him. Second, he must be able to direct the planning process so that it impinges upon the administrative system that is expected to support the achievement of the desired objective. In this case the planner is involved in the formulation of objectives and should be concerned with the analysis of the administrative system to ensure that it will deliver the needed effort to realize the plan objectives. The weakness of this role is that planners have generally failed to pay attention to the administrative influence on implementation. They have assumed that the administrative machine is inert unless activated by the political authority in charge. The planner has to extend his conception of his role and go beyond the limited agency of formulating objectives (DeHasse and Welsh 1979).

Administrative planning supports the day-to-day running of an organization and its various decision centers (Anthony and Herlinger 1975). Planning at this level is much concerned with the responsiveness of the bureaucracy to its defined task. Planning in these circumstances has been reduced to administration and control and has

tended to formulate a set of objectives of its own which are directed primarily to the creation of stability within the organization. This serves to vitiate any responsibility to contribute to change in the society, and the planner's role comes down to preserving a continuing fit between the organization and its social mandate. Planning activity at this level has been restricted to the pursuit of efficiency of administrative procedure. The weakness is that this efficiency becomes self-defining, and assumes that procedure is its own end. Too often this level of social planning is divorced from any notion of Grand Ends in society. A typical case is an assistance agency which only requires that certain administrative structures and procedures be in place as a condition of aid. There is little care given to the consideration of how these conditions relate to the demands of the declared Grand Ends of a society.

At all levels of his work the planner must recognize and be responsive to his role of agent. For example, there is no acceptable way in which the planner could claim as a defense at Nuremburg, an obedience to higher orders. At all levels he must accept a moral responsibility, a responsibility which may never be clearly articulated in an open society. In those situations where planning has been displaced by a system of control and management that excludes the exercise of individual volition, the role of the planning process in the social system is effectively destroyed.

3.0 *The Purpose in Purposefulness: A Criticism of Determinism*

Having avoided any debate about the nature of objectives and the role of the planner in formulating them, we may ask to what purpose all this turmoil? The satisficers of Simon (1959) and the incrementalists of Lindbloom (1965) demonstrate that purpose is the main question by the enormous effort they spend in avoiding it. Hidden within this orderly retreat is the assumption that people will sort out the best order in prevailing circumstances and accept this as the best contemporary action. This is embedded in the positivist school of thought, which advocates responding to the most significant regularities observed in any circumstances. Such a response may be comforting in a society calibrated to stability with minimal demand for change, or one in which the debate concerning Grand Ends is restricted, but it does not hold up in the societies under the dynamic tension of change versus stability which was described in the opening paragraph.

The central weakness of the position lies in the reified notion of organizations as embodying the will and intentionality of a society. This metaphor limps because will and intentionality must always be traced to an individual or group of individuals. Changes, no matter how incremental or accidental they appear, are part of some intentional pursuit of an objective. To assume the absence of intentionality is to carry abstracted empiricism to the point where it becomes a

mystical force, as in theories of determinism and the inevitability of social change. In such theories people are not agents but mere instruments of some overwhelming force. The stage model of Greek classic tragedy, the inevitable march of the protagonist through the states of heedless prosperity in *olbos*, the overweening pride of *hubris*, the chaos of *ate*, and then death and immortality, makes as much sense in interpreting the world as some deterministic models of social development (Davis 1980).

3.1 *Criticisms of the Outcomes of Planning*

At another level, planning is criticized because of failure to implement stated objectives. This criticism assumes planning is meritorious only if it successfully constructs the future in advance, and ignores the basic thrust of planning, which is the effort to reconcile the tension between stability and change. In addition, it assumes that secondary ends, or intermediate objectives, are the final end. While a secondary objective may not be achieved, the pursuit may energize the force needed to approximate the grand ends of society. A plan may state that a national objective is the establishment of universal elementary education in a specified period. At the end of the period this objective may not have been achieved, but the degree to which the objective stimulates social force may contribute powerfully to the realization of a greater end, mobilization for rural development. The critical mass necessary for mobilization to take place may not have required the full achievement of the educational objective, which is, after all, not a final end. Those who reject planning because of a seemingly low level of implementation are assuming that objectives are self-contained and free standing.

In addition, some argue that planning should be terminated and that the entire operation, which is one of resource allocation and efficiency, should be placed in a budget office. This line of argument is based upon a limited notion of planning. The assumption here is that planning must exist by itself as a separate and central office. This is a modern manifestation of planning, and it holds for but one level of planning. There is nothing to preclude locating planning operations in many different agencies. Caiden and Wildavsky (1974) assume that locating planning in the budget office will end the need for planning. This is a dubious proposition.

The process of planning, as formulated by Aristotle (196.), is based in common sense. The common sense may reflect the narrow and time-bounded thought of Western culture but it serves the Western mind, and critics should appreciate that a universal or culture-free perspective may serve no one. The process does not have to be justified by anything other than an appeal to common sense.

3.2 *Planning and the Principle of Prudence*

Planning here is justified by the principle of prudence which can be stated as man's capacity to forego a present benefit for some greater future benefit. This principle underlies the concept of investment. In moving from the present decision to the future benefit, individuals in society and government will go through a process of planning which is the construction of probable paths linking all intermediate objectives to future benefit or reward. These paths will be formulated within the restrictions imposed by the perception of the Grand Ends of the society. In so doing the planner attempts to define objectives and means which will resolve the tension between stability and change.

In resolving this tension between stability and change the actors in society must formulate objectives and mobilize means. This process is informed by appeals to the past and appraisal of contemporary conditions. Positivist planners, when acting in non-Western cultures, may attempt to dismiss the past, but this will lead only to later confusion, and the past will finally intrude. There are situations in which planners have suggested that certain nations could only develop if they got rid of their religious beliefs (Myrdal 1968). Those who advocated such a dismissal of history and tradition may well review the Shah of Iran's handling of the matter. No matter how the formulation of objectives and the mobilization of means is conducted, it will aim at incorporating the benevolent and mitigating the malevolent. The judgment as to what is malevolent, or benevolent, is the function of those empowered to direct the society; and their judgments based on the organic law. This judgment cannot prevent all non-intended consequences but it can reduce the shock of them through a continuing *quid pro quo*. In an open society this process is always complicated by the active presence of competing *weltanshauungen* expressed through competing human aims. In the Middle East, given the competing views of the orthodox, the Sufi and the pragmatists, one may reject interest rates in all circumstances, while others advocate interest rates to non-believers only.

Planning, the formulation of objectives and the designation of means, is in actual fact not a choice: it is inherent in the very process of society. Whether this is expressed at the level of centralized planning offices is unimportant. The existence of the principle of prudence ensures planning, in the sense of a ranking of the consequences of complex choice. Choice is never so simple as a universally accepted good in stark opposition to a bad, but is more frequently competition between mutually exclusive goods which appear equally satisfying.

It is necessary to impose conditions upon the above statements. The continuous process of formulating and reformulating objectives and ends versus means, in accordance with the principle of prudence in a society, must be done within the context of democratic participation which does not suppress individual or group expression of volition and

values. Conformity to a process with objectives imposed by a self-appointed elite is not planning. The planner becomes a mere technician, a professionally trained operative who functions as an instrument in the hands of the directors and who concedes a suppression of his own personal values and his conception of the good society. In such a case, planning is replaced by a system of control and management.

True, planning has to accept the exercise of human volition as an imperative condition. Planners cannot be attracted by the suppressive tidiness of control, but should be committed to the framework and principles of democracy. A commitment to rationalism should not deny the moral basis of society and the individuals who comprise it. The planner, as a volitional servant of his client, must be directed by his own values, prior to involvement and throughout the process of involvement.

4.0 *The Planner in the Field: The Formulation of Objectives*

Even if a planner already has a grounding for his approach to planning, and is aware of his role in the planning process, how must he go about the formulation of explicit objectives in Third World countries where he can be a visiting specialist or domestic civil servant? The planner will seldom find a clear statement of objectives, nor can he assume an exercise where objectives are created in pristine purity. Rather he must search through heaps of old statements which are like strata of archeological artifacts from past ages, encrusted with age and misinterpretation. From the heap he will be required to help shape anew the statements of objectives and then establish their competing priority in the nation. Having taken an initial cut at this, he will be frustrated by the capacity of objectives to change as soon as they are born. The temptation will arise to declare that the entire society is irrational and that planning can never take place there. Frustration will emerge from the fact that there is an immeasurable distance between the theoretical tidiness of planning theory and its actual practice. This demands that the planner quickly learn how to link his theory to the wisdom of practice.

4.1 *The Source of Planning Objectives*

When the planner acquires the wisdom of practice, the normative structures expressed earlier in this paper become references that serve to maintain bearings and assist the formulation of a proposed statement of planning. There are pointers that guide the planner in interpreting the multiplicity of statements of objectives which confront him. The planner must first establish where various statements come from and their relative importance. He must establish the *Derivation of Objectives*, i.e., find the root source of objectives. There tives. There are various sources:

First Level — International

a. General statements of universal rights. e.g. U.N. Universal Declaration of Human Rights.
b. Declarations of Intent put out by international, intergovernmental development assistance agencies. e.g., The Congressional Mandate of USAID.
c. Declarations of Intent published by International aid donor agencies such as the World Bank, e.g. World Bank Reports.
d. Declarations of Intent promulgated by regional international bodies such as the Organization of African Unity, or South Pacific Conference.

Second Level — National

a. Pre-independence Declarations of Intent as formulated and promulgated by those who gained power (This also applies to those nations who consider themselves to have been colonized, or sections of their populations consider it so, but were not actually colonized in the full sense of the term.)
b. Post-independence Declarations of Intent.
c. Persisting colonial objectives.
d. Declarations of national identity
e. Responses to short-term unpredicted occurrences

Third Level — Sub-National:

a. Pre-independence regional statements
b. Post-independence regional statements
c. Inter-regional exchanges
d. Regional contribution to independence
e. Regional contemporary contribution to national government.

The description above of the derivation of contemporary statements of objectives is not exhaustive, merely indicative International sources of objectives tend to yield Grand Ends, or Grand Objectives Though these statements of Grand Ends may not have entered the fabric of society and become popularly accepted, they may still inform the values and beliefs of the elites in power

The declarations are often used to validate the concept of nationhood. All nations joining the United Nations accept and endorse the Declaration of Human Rights Even when the subscribing nations have only sufficient resources to pay lip service to these declarations, the endorsement indicates intentionality and defines the framework within which the nation can be expected to act In some cases nations accept the declarations as a condition for entrance to the United Nations, and not as a principle to guide their actions The planner, when dealing with declarations in these circumstances, is forced to make some general presumptions about intentionality and to accept the intention as *bona fide*, although not the sole source of enlightenment.

The second and third sets of derivations at the international level tend to be more influential in indicating priorities, because their sources are the possible donors of financial and technical aid for development Poor nations of the Third World may believe themselves

incapable of ignoring the statements of potential donors. It is important to stress that the decision to be restricted by such declarations is based in the national intentions of the government; that there is interaction between international statements and national declarations. Nations promised economic growth will be required to look outside for support, and in doing this will feel constrained to formulate objectives that indicate congruence between their objectives and those of possible helpers. However, note that the leadership of the nation makes the decision. It is not imposed by external coercion. The fact that the decision-maker binds himself by prior promises beyond the resources and capacity of the nation does not serve to shift the responsibility for the decision.

The final set of international influences has little impact on objectives and is usually designed to demonstrate a regional unity and mutual support that may be more mythopoetical than real. One example is the persistent African expression of unity and mutual support emanating from the OAU. A survey of contemporary events shows the mythic nature of these statements. However, they cannot be ignored because they do have mythic influence upon the national situation and, though they do not initiate objectives, they have the capacity to inhibit their expression Such inter-regional declarations serve to limit and restrict the degree of freedom available to policy formulators.

4.2 *Conflicting Objectives*

At some point the planner will be confronted with conflicting objectives. Internationally derived objectives may appear clear, but contradict an espoused regional theory A nation may pay lip service to regional unity and act according to its own interest The international donor agency may have two distinct clients, the recipient nation on the one hand; and a sponsoring client within the donor country on the other. In the case of USAID, clients within would be the Congress of the United States

When declarations conflict, the planner is confronted with a wide selection of possible informing actions and intentions. How he differentiates the real from the myth is a matter of his informed opinion and experience The Third World has declared itself against multinational corporations, but the open condemnation has not inhibited the seduction of the willing nation

International influences are important, for a number of reasons relevant to planning:

- They help fill out the broad canvas against which the national government can be assumed to act.
- They flesh out the reality of the nation's self-concept, as seen by policy makers
- Their interactions restrict the degree of flexibility and

freedom open to the policy maker and then to the planner. To ignore these influences is to minimize the effect of antecedent conditions upon contemporary actions. Also, these international influences will have effect on considerations at the national level.

— Nations influence each other if only symbolically.

4.3 *Change and Persistence of Objectives Over Time*

At the national level historical influences are strongly felt. This appears to be a basic rule. No matter how much of a brave new start is declared, groups within the nations will continue in historically formed relationships. In Africa, for example, the Hausa and Ibo, the Kikuyu and Luo, the Christian and Moslem will not change their historical perception of each other simply because a new form of government is declared. Tribal historical feelings may be dictated in considerable part by the manner in which the colonial rulers treated and favored various groups within an area that later becomes a nation. In Uganda, the Baganda were in such a favored position that practically all policy development, from OBote to Amin, has reflected the resentments which were generated by this favoritism. Mirabeau observed that the man who gets married gives hostages to fortune, and this is the case with national politicians: in the formulation of national objectives the past can only be ignored at peril. This is not simply a result of the persistence of historical prejudice, it is also influenced by the structure that historical precedent has set upon institutional life and individual expectations. These historical influences are persistent bases for conflict or affiliation with any nation which incorporates more than a single cultural expression or ethnic domain.

A first level of conflict is found in the lack of congruence, often a contradiction, between pre-independence and post-independence statements. A great deal of the ambivalence within the planning process will emerge from attempts to reconcile these competing statements. This does not apply exclusively to African nations with a specific colonial history. It also occurs in nations that experience profound and abrupt changes in the mode of government, such as Latin American nations. It will also occur in those circumstances where the institutions of society have changed while the mode of government remained fixed in prior patterns and conventions, as, for example, the changes in the nature of the military forces, or the Church, in certain Latin American nations. These changes may well be as influential as changes in mode of government. In examining and formulating objectives, the planner must react to the restrictions imposed by these influences. There is little to be gained from declaring the influences insane, or attempting to bury or banish them. Later those banished ghosts will rise and play havoc with the congruence between planning and implementation.

As if the above were not complicated enough, it is made more complex by the persistence of colonial objectives. These persist for two basic reasons. First, all colonial governmental or administrative actions were not evil and may have even benefited the society by introducing institutions and relationships which did not exist. Cultural and social exchanges have always been part of the evolution of so-called developed society. The West can admire and maintain the insights of Aquinas but still must recognize the debt to the Arab philosophers who prompted his actions. In a liberated society, processes and institutions which have improved society will be maintained. In Papua, New Guinea parents resisted the attempts to shift education from a labor market-directed process to a local community development process (Welsh 1976).

Secondly, the process of the allocation of resources within a society cannot be turned off like a faucet The commitment of resources to a particular project or program may tie the government to the completion of these actions. There is little use for a half-completed dam or hospital. The importance to the planner is that the decision to persist or terminate is a sensitive indicator of the nation's priorities, as designated by the government of the day. This is particularly so in education and schools Swift changes may be made in the educational structure and curricular content, but the bureaucratic structure and its values may persist unchanged In this way a political priority may be indicated — for example, social service over political-administrative function

The planner on entering the nation must find the complementarity between the international and national historical influences, in order to construct the framework of the nation's declared aspirations The framework is then rounded out by examining the sub national influences This tends to be a microcosm of the national picture and serves to focus the internal choices and conflicts facing any plan formulation The planner can never assume cohesion within a nation simply because it is declared to be single and united

5.0 *A Matrix for Classifying Objectives*

Historical analysis serves to delineate a task for which planners are not usually well prepared, the clarification of circumstances for the client or person to whom the planner is directly accountable in the country. To assume that the client is some ill defined entity, such as the people, is not informative; but, more importantly, such a presumption extends the planner's role far beyond its legitimate limits, as will be made clearer later in this paper A further benefit from an examination of circumstances is that it clarifies the limits of freedom and flexibility obtaining in the actual situation These are never so great as technical appraisal might indicate There is no Lockean *tabula rasa* Swift and abrupt changes made by policy makers are in

considerable part traceable to prior commitments and to shifts that have taken place in the ordering of these commitments. Examination of the historical antecedents prepares the planner to enter the more confused arena of contemporary situations. The matrix in Schema 12.1 portrays a structure for analyzing decision statements, and it is not merely a matter of identifying a statement, but also the effect of the statement as it interacts with levels of interpretation.

The Context includes the domain wherein the objective is formulated, such as international, and the particular area of activity, such as economic, which expresses the area of purpose of the objective.

The Signal refers to the intended level of interpretation, such as international, of the objective statement, together with the particular area of address, such as aid donor assurance, within which a reciprocal action is anticipated.

5.1 *Analysis of a Plan Statement Example*

Consider this plan statement of Swaziland:

> To achieve a greater measure of independent control over the economic affairs of the nation.

The context of this statement is at once international and addresses the area of economic activity. The implication of the statement is that, at the moment of writing, the nation had less than the desired level of national independence. The same statement is a signal to external bodies that the nation intends to shift its policy to achieve its desired end of economic independence. It also invites a response from these external bodies with respect to this intention. This will then be used to shape a more detailed formulation of plan aims:

> To establish and strengthen the institutions and instruments necessary to a modern and independent government for the effective guidance and control of the economy

This signal is, in turn, amplified by a late declaration of objectives

> To continue the diversification of external economic relations, both in trade and in aid

All three statements form a context for a national position, and signal to external agencies a desire to make changes in their system.

Both the context and the signal component, when interpreted, provide a more precise reading of the situation in Swaziland. Notice has been served that the nation has shifted its position, and this shift will have an effect on relations with other nations. There is also an assumption that the statement will elicit a response from the external agencies which will not prevent realization of the stated intention to diver-

sify the basis of trade and aid. If such is the case, the statement will stand, or even be elaborated with further difinition. (This is indicated by X in the matrix in Schema 12.1.

Schema 12.1: A Matrix for Analysing Objectives

			Context											
			International				National				Sub-National			
			Diplomatic	Political	Economic	Social	Political	Economic	Social	Administrative	Political	Economic	Social	Administrative
Signal	International	Diplomatic-Political Stance	X_1											
		Aid donor Assurance			X_1 Y_1									
		Economic Stance												
		National Validation		X_1										
	National	Political Interest												
		Party Interest					X_1							
		Admin Bureau Interest												
		Regional Interest												
	Sub-National	National Consolidation						■						
		Regional Consolidation												
		Regional Competition												
		Admin-Bureau Interest												

5.2 *The Ripple Effect of Intervention*

The matter would be simplified for the planner if he could assume that the process would end with the action within a particular cell of the matrix. All that would then be required would be to establish its validity and suggest minor but necessary reformulations. The planner would then have an effective objective statement that would be most likely to travel. Alas, it is not so simple.

Intervention in the form of X_1 has inevitable ripple effects through the matrix. This is demonstrated by suggested effects X_2, X_3, X_4. These effects are not exclusively sequential and may be complicated by feedback effect which changes the nature of the initial effect registered at X_1. One result may be Y_1 displacing and replacing X_1. At X_1 the national officers responsible for the formulation of economic policy may compose a statement which endeavors to fit the conditions for aid assistance specified by an aid donor. This in turn may prompt a reaction at X_2 from the foreign ministry which points out that the economic statement qualifies aspects of their diplomatic-political stance. However, the ripple effect does not end at X_2. The national political party in power may indicate, in turn, that such an economic policy, together with the diplomatic accommodation, compromises their position in respect of the national validation policy, X_3, with respect to bloc politics. This in turn will have a purely domestic effect at X_4 with respect to political and national party interest. This combination and sequence of events will result in pressures for rewriting policy at X_1, and this produces a new effect indicated by Y_1. The process will never cease, and the interactions are more complicated and varied over time than this example demonstrates.

On entering any situation of service the planner cannot assume *tabula rasa* with respect to such a matrix. The planner attempts to formulate an intervention which will change effectiveness and in some cases direction. Most planning is preactive (Ackoff 1974). Intervention by way of formulating new objective results in inhibitory or enhancing reactions in other areas of the matrix. These in turn result in what to some planners appear to be irrational decisions and actions, though in fact the rationale of politics may be informed by wider and more comprehensive factors than planning theory presently assumes.

Planning theory and theoreticians tend to focus upon particular cells within the matrix rather than addressing the interactive features of an intervention. This is not resolved by the use of large models, which seldom have the capacity or flexibility to handle the dynamics of interaction. Interpretation of interactions in the absence of adequate techniques will continue to be a product of the planner's street wisdom. Technique may never have the capacity to handle the wave on wave of interactive effect propagated in an open society.

Interaction need not appear in as gross a form as the matrix in-

dicates. The matrix may be refined, using statements of objectives within very specific areas, as demonstrated in Schema 12.2 below.

Schema 12.2: Detailed Section of Matrix for Analyzing Objectives

		National Economic			
		Industry	Agriculture	Commerce	Education
Sub-National	Regional				
	Administrative				
	Mobilization				

This schema is an enlargement of the cross-hatched Schema 12.1 cell, which is the economic component from the national area, cross-tabulated with the sub-national consolidated component. It is used to suggest the refinement of detail that may operate as a result of a decision to intervene in the sociopolitical organization of the nation. Refinement can be carried to the point where it serves as actual technical aid to the planner, although that is not the purpose of this paper. For example, take this refinement to one further level by amplifying the cross-hatched cell of Schema 12.2.

These successive refinements should call attention to problems often concealed in labels such as objectives and means. There are few objectives that are free-floating and totally novel; all are embedded in a social and time context. History will interact with present intention to shape a current statement on the best means to survive while pursuing

the principle of prudence. Not promised is prudence realized without cost, nor an errorless future.

Past development objectives were not to pollute the world, but pollution came as part of the price for increased material benefit. The unforeseen end, pollution, now becomes an active principle, a *principia media* in fact, for future objectives (Henderson 1978); and pursuit of a pollution-free future may ambush man again. The assumption of an errorless future, the millennium, pre-supposes the absence of individual volition and assumes that it is replace by a single, commonly shared and accepted will. This happy occurrence would obviate the need to plan, not to mention the need to exercise free will. It is the informing principle of those who assume that the planner should be the director in society and the rest of the people mere followers.

Organizing matrices serve the planner at two levels; the pedagogical and the practical. At the pedagogical level the tables divert the planner from the exclusively technical considerations in the formulation of objectives, and remind him that objectives are informed by other, more influential factors. Planners may persist in arguing the primacy of the technical; but individuals will not accept the purity of theory, not through ignorance but because of existential knowledge of planning. These people will act with knowledge of the complex and messy interactive effects suggested by the schemas. Planning is nothing more than one instrument in the service of democracy.

The matrix of objectives also focuses attention on examination of antecedents in the society which might limit freedom in the formulation of a plan settlement. To neglect this will minimize the possibility of implementation of an accepted plan statement. Too often, in the statements of objectives, the realistic setting has been either restricted or ignored.

In the context of educational planning, let us address this at three levels: first, the responsibility of the educational system to the child; secondly, the responsibility to the immediate local community; and lastly, the response to the needs and aspirations of the nation. Not to examine the implications of all three levels is to build into the plan inevitable bottlenecks that will ensure failure to achieve implementation. Approaches such as Transactional Planning address the problem with the term of Remote Environment (Chapter 16). There is no such entity as *remote* environment. All factors are, in fact, quite close, and actively influencing and shaping the range of options open to the planner and his client.

5.3 *The Practical Tasks of Planning*

At the practical level the planner approaches the task along these lines:

— Examination and analysis of antecedents binding or directing the policy maker

- Delineation of the implications of the contemporary setting for the formulation of planning objectives pursuant to social change.
- Gauging the interactive consequences of the formulation of objectives across the various domains and authority levels of the society.
- Refinement of the most effective point of intervention for ensuring the probability of implementation, and presentation of this to the client.
- Clarification of the costs of achieving the formulated objectives, i.e. what will be the consequent active principles that such a course of action will bring into being?

Some planners have to concentrate on the third item above, to the neglect of all others. They focus on the analysis shown in Schema 12.3

Schema 12.3 Further Refinement of Matrix for Analyzing Objectives

Regional	Education: Elementary	Secondary	Technical	Tertiary
Funding				
Enrollment				
Location				

and ignore the antecedent conditions and interactions that are shown in Schemas 12.1 and 12.2. This limited analysis may appeal to planners because it calls only for the application of familiar quantitative techniques. The demonstrated fact that these techniques are far from sufficient for addressing the complexity of a society involved in deliberate social change has not been generally admitted among planners. Objectives in planning are neither mere technical expressions of capability nor exhaustive descriptions of social potentialities; they can always be formulated from alternative perspectives and with techniques that contribute more information (Hudson 1979).

5.4 *Objectives: Their Mode of Expression*

While prior sections of this paper have focused attention on the process of formulating objectives and on the planner's role in the process, it is essential that practical instruments be constructed to facilitate expression of objectives. There have been various attempts to develop typologies and systematic statements of goals for education and development. Typologies of the goals and effects of education have been discussed in the last section of Chapter 2. Bloom (1966) developed a taxonomy of instructional objectives for cognitive learning. Inkeles and Smith (1974) developed a typology and scale of modernization and social development; Adelman and Morris (1967) developed a typology of indicators of economic and social development; and Textor (1963) developed an exhaustive taxonomy of political and social goals and indicators. The approach proposed below attempts to develop a framework to permit the planner to address systematically the various levels of activity referred to earlier.

Schema 12.4 A Framework for Stating Objectives

Criteria / Objectives	Performance	Standard	Conditions
Terminal (Political)			
Enabling (Bureaucratic)			
Functional (Professional)			

The schema will be clarified using educational concepts, but it is not limited to this application.

Criteria:

Criteria means the manifest behavior expected, and assessed according to specified level of competency under specified conditions.

Performance:

Description of the behavior required.

Standard:

The level of competency specified and demanded.

Conditions:

A description of the environmental circumstances within which the performance is judged. (Note similarity to Mager 1962).

These criteria are suggested in order to avoid the tendency to restrict criteria to statements of performance. The inclusion of conditions attempts to focus attention on the fact that the criteria for judging or evaluating objectives only has meaning in the context of the circumstances of the action. The conditions defined must be a reasonable reflection of the reality of the contemporary society and its aspirations. Thus, conditions cannot be limited by present reality.

5.5 *Further Refinement of Criteria: Levels*

There could be further refinement of the performance criterion by subdividing them into intellectual, practical, and affective domains. There are a variety of systems and taxonomies for this (Bloom 1961; Krathwhol 1964)

Objectives of the matrix may be stated at three levels.

Terminal Level:	These are the global political statements of national objectives
Enabling Level:	This is the specified bureaucratic and organization structure needed to link the terminal objectives to the functional
Functional Level	These are the detailed objectives that individuals and groups are expected to achieve in order to realize the terminal objective throughout the society

The levels of objectives are subject to certain restraining and definitional rules The direction of these objective statements, from terminal to functional, is important. A society which attempts to define the enabling or functional levels without reference to the terminal has no ultimate criterion for judging the acceptability of objectives. We will return to this point later.

The three levels of objectives are in keeping with the complexity of society and the conviction that evaluatory judgments must occur through a political process which articulates terminal objectives. Bureaucracies do not automatically adjust and respond to political control. Terminal and fuctional objectives cannot be formulated in isolation from enabling objectives. (DeHasse 1979).

The weakness of the framework is that it becomes more difficult to apply as planning moves from the terminal level to the functional level in a developing country. Consider an example in the field of education. Objectives for lessons are spelled out in considerable detail These have been abstracted from the general aims of an academic field which has been refined from the general curriculum objectives. Attainment of learning objectives becomes increasingly difficult to assess as we move from classroom to school, to education system, and attempt to relate the attainment of an individual learner to a system's goal. In turn, if we consider the system's original pattern, it is difficult to reconcile this with the political objectives that are assumed to guide everything else. This does not deny the existence of political objectives, but draws attention to the fact that they have been so long embedded in the system that they have not been subjected to recent examination. Education systems can then become irrelevant to larger social purposes (Picker 1979) Dealing with terminal objectives is often such a confusing activity that many planning exercises assess outcomes only at the functional level Low levels of attainment of general goals are the result

6.0 *The Formulation and Interpretation of National Goals Restrictions and Limitations Confronting the Planner*

Hamilton in *The Federalist* (1942) presents one way in which the pursuit of the ends of society can be both activated and evaluated:

> Every power vested in a government is in its nature sovereign and includes by force of the term, the right to employ all the means requisite to the attainments of the ends of such power If the end be clearly comprehended within any specified powers, and the measures have any obvious relations to the end, and it is not forbidden by any particular provision of the constitution, it may be safely deemed to come within the compass of the national authority

Hamilton highlights the tension between the comprehension of the ends of society and the day to-day governing of society He indicates that the contemporary issue is subject to evaluation by reference to the specified end, as it is expressed within the constitution of the country.

From Hamilton's statement three basic rules may be abstracted. First, in any society there is a set of overarching principles which endeavor to express the society's purpose and intention. In many coun-

tries these are embodied in the constitution. Second, the subsequent actions of government must be compatible with these general statements of principle. Third, all actions are consequent to the provisions of the constitutional principles and, should a novel situation arise, it must be initially handled by a mechanism which reformulates the guiding statements of principle.

6.1 *A Framework of Principles and Ends*

These three rules frame the role of the planner in any society, as in Schema 12.5, which sketches a framework for analysis of the planner's role (the designation of ends as either action or product was used earlier in this paper).

Schema 12.5

ENDS

PRINCIPLES	Action	Product
Definitional	1	2
Directional	3	4

Principles are those guiding statements which any society assumes to be its social and cultural underpinnings. The definitional principles are those statements embedded in the constitution which both limit and permit expansion of the aspirations and goals of the society. All societies have definitional principles, but not always in written form, as in the United Kingdom. The directive principles are those

statements embedded in the constitution which are legally defined as mandatory and apply to the government of the day. These principles permit the various agencies of the government to function, but simultaneously restrict the extent of such activity.

Any planner, whether a citizen or a foreigner, has his role bounded by the directive level principles. The directive is limited to the current government, and the planner is linked to the agency delegated by government. If the planner elects to work within such an agency, he is then restricted by the authority delegated to him through the agency of the government. The effect of this investiture of function in the planner contains a restriction of his power, in that he must operate within the delegated authority of the appointing agency. A case could never arise where the planner was delegated authority from the definitional level. Such authority can only be delegated because of political legitimacy rather than expertise

With respect to the definitional principles, however, the planner has more restricted rights than the ordinary citizen While the ordinary citizen can be considered to have the right to question and hope to change the definitional principles of the society, the planner, as an agent of government, must accept the principles and work to realize them. In his official capacity he has no right to question the fundamental principles of the society, his is restrained by the definitional principles from such activity Any attempt to act outside of these restrictions involves the planner in a de facto repudiation of the same principles which demand his loyalty and observance Such an act is a revolutionary gesture which cannot be accommodated within the defined role of the planner This rule holds for planners, whether they are nationals or not In effect, this means that the planners's role is defined wholly at the level of cells 3 or 4 in Schema 12 5 He does not work at a definitional level

6 2 *The Guiding Rule for Planners*

From the above follows the rule that the planner is limited to the formulation of subsidiary objectives for society, he cannot assume the right to formulate teleological objectives, because such action could not be reconciled with his role and agency within government. A planner empowered to transcend the restriction of the formulation of secondary objectives is in a position to usurp political power, and usurpation contradicts the political process which this chapter assumes to be the only viable climate for social change through planning This power to formulate secondary objectives is itself restricted by the rules of priority and consistency Any secondary objective must be subject to the prior superiority of the definitional statements of society and must be consistent with these statements Consistency is demonstrated when the planner traces the derivation of definitional

statements.

The difficulty of this position in contemporary politics is that only planners can read and interpret planning statements, and so the rule can be transgressed through lack of informed political criticism. It is the responsibility of the political representatives and the legal authorities to ensure that such actions do not take place. (It is worth noting here that when a political party achieves power within a society with representative government, the party coming to power is limited by the prior definitional statements, and if it denies the statements it becomes a revolutionary governmant).

As to the order of priority in Schema 12.5, one rule will always obtain: The definitional principles have primacy over the directional. (Whether product has primacy over action ends is the crux of party political action).

7.0 *Application to Third World Goal Statements: Saudi Arabia*

The situation in the Third World may be illustrated by examining three statements of national goals drawn from Saudi Arabia, Papua, New Guinea, and Swaziland. These were not selected for their particular merit but simply because they were available to the writer. These statements will be considered in the light of the model presented in Schema 12.5. The first of these is that of Saudi Arabia (previously shown in the Appendix of Chapter 3).

7.1 *Saudi Arabian Plan Goals*

Development Goals of Saudi Arabia

Planning implies the efficient use of a country's resources in accordance with certain rationally-determined priorities for the attainment of nationally-cherished goals. Since goals are culturally, historically and politically oriented, a country's development plan essentially reflects its fundamental values and principles.

1. Maintain the religious and moral values of Islam.
2. Assure the defense and internal security of the Kingdom.
3. Maintain a high rate of economic growth by developing economic resources, maximizing earnings from oil over the long term, and conserving depletable resources
4. Reduce economic dependence on export of crude oil.
5. Develop human resources by education, training and raising standards of health
6. Increase the well-being of all groups within the society and

foster social stability under circumstances of rapid social change.

7. Develop the physical infrastructure to support achievement of the above goals.

The first objective above is an example of the type of statement which fits cell 1 in Schema 12.5. This informs the planner of the principles and values which must inform his plans. His statement of secondary objectives must not contradict the tenets of Islam. In Saudi Arabia this is the fundamental principle and the basis of evaluation. Objective two occupies cell 2 of Schema 12.5. The definitional products have to be monarchical institutions and must not deviate from this objective. The other objectives listed all lie within the level of directive statements. Three through six are all within the domain of cell 3 in Schema 12.5. They do not posit any product outcome but may be assumed to be establishing a climate of action within the society.

Only objective seven lies in the realm of product outcome. It is important for the planner to reconcile product outcomes with definitional ends and principles. In this plan the connection between product and principle is established through a statement that interest-free loans will be given for housing and basic needs. Such a statement, rejecting the taking of interest, makes the product outcomes of development consistent with Qu'ranic principles.

All in all, the development goals of the Kingdom of Saudi Arabia are consistent with the structure of Schema 12.5 and serve to demonstrate the model. The planner entering this society will have a very clear notion of his task, and the Saudis will have a clearer notion of how to evaluate and decide on the planner's proposals. This clarity derives from the fact that the definitional level is established and expressed in goal statements.

7.2 *A Second Set of National Goals, Papua, New Guinea*

The national goals of Papua New Guinea are distinctly different from those of Saudi Arabia. In the Papua New Guinea case, all goal statements are limited to the directional level. The statements are located in the directional level of Schema 12.5 on the assumption that nothing presently exists. The list leaves the impression that all will be achieved as the result of contemporary government actions. If one asks the question "For what?" after each of these, there is no definitional answer. In the Saudi plan the answer is explicit — for Islam and the Kingdom.

A possible case might argue for classifying five as a definitional level objective, but there is nothing in the body of the text to indicate that there is a generally accepted definition of Papua New Guinean ways.

National Goals and Directive Principles of Papua New Guinea

1. *Integral Human Development*

   We declare our first goal to be for every person to be dynamically involved in the process of freeing himself or herself from every form of domination or oppression so that each man or woman will have the opportunity to develop as a whole person in relationship with others.

2. *Equality and Participation*

   We declare our second goal to be for all citizens to have an equal opportunity to participate in, and benefit from, the development of our country.

3. *National Sovereignty and Self-Reliance*

   We declare our third goal to be for Papua New Guinea to be politically and economically independent, and our economy basically self-reliant

4. *Natural Resources and Environment*

   We declare our fourth goal to be for Papua New Guinea's natural resources and environment to be conserved and used for the collective benefit for us all, and be replenished for the benefit of future generations.

5. *Papua New Guinean Ways*

   We declare our fifth goal to be to achieve development primarily through the use of Papua New Guinean forms of social, political and economic organizations

These statements, however, do offer some basis for distinguishing between product and action ends at the directional principles level. Objectives dealing with national sovereignty and self reliance, together with natural resources and environment, may be alluding to product ends. The other statements attempt to address the action ends of society, and to establish the action-informing principles at the level of government.

The planner entering the situation of Papua New Guinea will find little basic guidance in these statements The planner can do little but follow the *ad hoc* shifts of the government, no informing principle is explicated in this list of statements The absence of such definitional statements permits the planner to fish around for effect, but there is nothing to guide such an expedition No matter what secondary objectives are formulated in such a situation, there is nothing to measure them against, other than the passing whim of the government of the day. This whimsicality will be exaggerated by the fact that the statements of the goals mainly address the action ends of the directive domain.

7.3 The Goal Statements of Swaziland

The Goal Statement of Swaziland

The policies and programmes enunciated in the present Plan are guided by two broad purposes: first, to promote the wide-spread participation of the Swazi people in development in order to improve their general level of living and quality of life; and secondly, to achieve a greater measure of independent control over the economic affairs of the nation. The policies and programmes to be pursued in fulfillment of these broad purposes have the following aims:

(i) to promote the progressive transformation of traditional agriculture from subsistence to semi-commercial and commercial farming, both to create more opportunities for gainful employment and to raise incomes in the rural areas;

(ii) to increase employment opportunities as rapidly as possible both through emphasis on rural development and through measures to expand wage employment and self-employment in the modern sector;

(iii) to improve the relevance and usefulness of educational and training programmes for life and work in the rural areas, among both adults and children;

(iv) to educate and train sufficient numbers of young people to meet the requirements of an expanding economy for high-level and middle-level manpower and to realize the highest rate of localization consistent with the maintenance of efficiency;

(v) to establish and strengthen the institutions and instruments necessary to a modern and independent Government for the effective guidance and control of the economy;

(vi) to provide better housing and health conditions, particularly through aided self-help housing programmes and improved environmental sanitation, for low-income families in both urban and rural areas

(vii) to promote a balanced and equitable distribution of development among the several regions of the country.

(viii) to continue the diversification of external economic relations, both in trade and in aid.

7.4 *Goals in Cross-National Comparison*

While the Papua New Guinean statements of objectives are essentially limited to the directional level of the matrix, the objectives of Swaziland are even more restricted. It is difficult to place any of the statements outside the directional level product ends cell of the matrix. It is possible to argue that item (iii) constitutes an action end in that it is endeavoring to specify a non-product end, but this is stretching matters.

The official, or policy maker, in Swaziland who invites a planner to work could dissent from the planner's diagnosis and prescription only on the grounds that the planner's proposals lay outside the boundaries described in the intentions.

No matter what a planner proposes, there is no defense against it. Since all of the ends are product ends, they can be fairly well analyzed and defined by the planning techniques available to planners. Should the planner state that such an option is the most efficient way to achieve the end, who can argue against him? If the client was capable of arguing against him, he would have to produce arguments founded upon different principles from those found in the planner's proposals. In such a case the alternate principles would be either the embedded definitional objectives of the client or merely his prejudice.

The Papua New Guinea and Swaziland planning statements leave the countries with no evaluation principles except efficiency. Educational targets could only be evaluated in terms of the numbers specified in the plan. If the plan specifies 100% elementary enrollment in five years and this is not achieved, the plan fails. If it does achieve 100% enrollment this does not address the definitional intentions of the nation and society. The fundamental problem facing the planner and his client in these circumstances is that there is no way of establishing the purpose of all of this activity In the Swaziland case, consideration of statement (v) may clarify the issue: "To establish and strengthen the institutions and instruments necessary to a modern and independent Government for the effective guidance and control of the economy."

Since this statement is not accompanied by definitional principles and goals similar to those of the Saudi statement, how is one to be guided in the selection among many different available models? The institutions and instruments needed and accepted in one state are not necessarily those of another. In Saudi Arabia the institutions and instruments will be essentially monarchical, but what are they to be in Swaziland? These can only result from the personal intentions of the government official interacting with the motives of the individual planner. There is nothing to prevent a new government and new planners from repeating the same experiment. Ideology would be ad hoc, and this is the one and only principle informing all choices of objectives.

8.1 *The Consequences of a Lack of Definitional Goals*

The consequences of listing merely directional statements are not trivial. If all objectives of the society are merely directional and limited to product ends, the planner becomes a critical component in the political life of the nation. The only principles that can guide the political process of resource allocation are principles of efficiency derived from the best available planning techniques. In this case the planner faces no restrictions. If the planner has no definitional principles restricting him, he will guide his decision by his own definitional principles. A planner from the United States would fill the vacuum with his transported values. A planner from another nation and society would do likewise. This would not be a conscious decision that could be crudely termed neocolonialism, or any other simple label, but someone's morality will always guide action. It does not matter which version of morality takes over. When this happens in circumstances such as Papua New Guinea and Swaziland, the planner is in actual fact a political force and not a technical assistant. In light of the restrictions in earlier sections of this paper, this is not acceptable as planning.

The question can be asked what the planner should do in these circumstances. One argument would be that he should not participate but should center his action on clarifying the need for his client to formulate the definitional statements. However, this is not a function which the planner is any more trained to do than any other person. His task is restricted to drawing attention to a deficiency, and this is obviously not practical. Another option open to the planner in such circumstances is to assume that he is working within unstated definitional principles and ends, and that these are compatible with his own. This is not pure fiction if one bears in mind the implications of the specialization of labor. To be selected by the client is a tacit approval of the values which are assumed to be shared with the planner. While the society may not have formulated an organic law, its existential mode of acting may be sufficient to imply an espoused notion of such a law.

There are planners and writers who will not be bothered by the lack of directional and definitional statements, and will even assume that it is a good thing. Those who hold this position are ruled by a notion of planning which contradicts the caveats of this paper. Such people would consider such circumstances to be a heaven-sent opportunity for the planner to act at the political level and to assume the right to direct society to his perceived Grand Ends (Bowles 1979). This leads the discussion back to the notion of the planner as a controller and manager of society, with the right to impose conformity. There are no grounds for any planner to make this assumption. It is a denial of the

free exercise of human volition. It does not matter whether the planner is visiting or local. Both are bound and restricted by the earlier statements of the chapter.

It is important to consider the implication of exclusively directional objectives for a nation. If these are the only category of objectives to be formulated, then the society must assume responsibility for his own circumstances. This is the essential warning embedded in the moralistic writings of critics of development (Goulet 1971). The selection of directional level objectives alone, and the absence of definitional principles and ends, will result in the imposition of the definitional principles and objectives of others. It does not matter what aspect of development or planning is under consideration this basic rule will always obtain. At the risk of crudity it may be expressed as "either you take the choice or the choice takes you." The apparent failure to make choices is of itself a choice.

The society that does not make its definitional statements explicit, or have them incorporated in a shared notion of the organic law of society, leaves itself open to domination by planners using efficiency techniques. This is the principal problem facing Third World countries. While they are assumed to be planning by merely listing general objectives and goals, as those typified in the examples of Swaziland and Papua New Guinea, the planning does not move beyond the mere product level or directional level. Directional level objectives can have no meaning in the absence of definitional principles. Planning in such circumstances is little more than managing and controlling nations to ends defined by personal prejudice or opinion.

8.2 *Planning: A Basis in Definitional Principles or a Sterile Exercise?*

A planner working in such a milieu offers no service beyond the technical. This technical service will be essentially descriptive and will leave the question of implementation in the air. This may account for the gap between planning and implementation persistently experienced in the last two decades. This cannot be simply a failure of techniques, as is sometimes posited (Caiden and Wildavsky 1974). Planning, particularly at the political-administrative level cannot be achieved by mere technique; it must be informed by the explicit statement or the general acceptance of definitional principles and ends. Planning that does not go deeper than the directional level, with a product priority, can never resolve the tension between stability and change in the society. The planner is always faced with the task of eliciting deeper levels of principle and ends in any society. Only by achieving this can he hope to give real service to his client, and only in

reference to these principles can the client hope to judge the merits of the planner's proposals.

CHAPTER 13

Beneficiary Participation in Rural Education Programs: Planning Issues

JOHN BEARDSLEY

1.0 *The Problem*

Planners have become increasingly concerned with the problem of encouraging the participation of rural poor people in their own development. For those engaged in planning education within the context of developing countries, the theme of participation in social development enterprises has brought both excitement and frustration. The advocates of participatory planning, who fault rational planning for its failure to accommodate and encourage the participation of beneficiaries, have made their point with their critique. Clearly, the prospects of implementation are surer when the presumed beneficiaries are engaged and active. The United States Agency for International Development considers participation of the poor majority in development efforts which affect them essential to the success of all development programs. The 1973 Foreign Assistance Act is very explicit about the need to involve intended beneficiaries in planning and implementation of projects, as well as in the gains of development.

In 1975, a number of United States private voluntary organizations cited "local participation" as one of the most critical issues facing their programs over the next several decades. These organizations agreed that their programs should be judged by criteria which reflect the importance of having the local groups participate fully and increasingly throughout the implementation of the program, both in decision making and in contributions of materials, cash and personnel (Sommer 1977). The problem is how to bring this about, without destroying initiative and participation by the very pursuit of it. How can participation be accomplished through intervention? Is the very notion a contradiction? How can participation be defined and observed? How is it possible to know when participation exists? When participation is increasing? And when participation is attributable to one form of intervention rather than another? How then to plan for it? This chapter does not answer all these questions or attempt to. It tries mainly to define and describe participation in rural development pro-

grams, to relate participation to different characteristics of the project setting, goals, programs, and processes. It traces implications for planning. It does not offer a pat solution.

1.1 *Importance of Participation in Development*

A participatory approach to planning and implementation is considered important for two reasons which are by no means mutually exclusive. The first is normative. Participation in the development process is a good and necessary end because all people have the inalienable right to influence (if not control) events which affect their lives. In this sense the development process is understood as "the creating of conditions in which all societies, particularly those at present oppressed and marginalized, can identify their own needs, mobilize their own resources and shape their own future on their own terms" (Traitier 1976 p. 2).

The second reason participation is considered important is for the other benefits associated with it. Elliot Morss (1977) attributes much of the failure of many projects to the lack of meaningful participation on the part of the intended beneficiaries. The failure is revealed when the benefits of many projects fail to endure and grow after the support of outside donors ends (Morss 1977). The landscape, Morss points out, is strewn with unmaintained wells and water pumps, moribund poultry projects and "new literates" once again lapsed into illiteracy. Such failures, he argues, point to the need for mechanisms through which local people can influence project decisions, mobilize their own resources, and contribute directly to the evolution and growth of a project.

People's participation in development, of course, is neither a new concept nor a new concern. Participation has been a goal of community development programs ever since such programs have been a component part of national development (Traitler 1976). The new rhetoric of those who call for rural development participation is similar to the old gospel of community development advocates. Both emphasize self-help and the creation of self-reliant, democratic village communities. The importance of creating structures to mobilize resources and ensure continuity of community contribution has long been recognized.

1.2 *Early Failures and Recent Criticisms*

What is new is the realization that previous community development and *animation rurale* efforts were, for the most part, shams. In fact, the community development movement seems to have died over 15 years ago. In 1963, for example, AID abolished its Community Development Division in Washington and subsumed its activities under agriculture or rural development activities (Uphoff 1979). Dur-

ing the decade previous to 1963, over $50 million had been channeled through this division to over 30 countries.

The official death of the movement did not occur without good reason. The applied forms which community development took in many countries had been severely criticized (Uphoff 1979). Two criticisms seem particularly relevant to the present-day preoccupation with rural development participation. First, community development efforts bet on the strong. Outside sponsors tended "to work through local leaders, 'influentials,' through the better-off farmers who were 'responsive' and who were often more representatives for the village elite than for the poor peasants who supposedly were the subject of community development efforts" (Traitler 1976 p. 4). The result of betting on the strong was the same passive fulfullment of newly imposed community obligations that had characterized compliance with traditional duties A study of peasant life in Latin America pointed out:

> The distrust and passive resistence of peasants towards development efforts is not an inherent characteristic of peasant societies, but a reaction to the fact that most development efforts are to the benefit of those who are already better off, while the peasants continue to live under a system which has been characterized as the 'culture of repression' or 'internal colonialism.' On the other hand, peasants are quite able and willing to participate enthusiastically in programmes or movements that are clearly designed to solve their grievances and to benefit them instead of those who are already better off (Huizer 1971 p 105)

A second criticism of community development programs is that they were essentially efforts to plan for people. They were top-down systems in which change-agents were essentially agents of a government ministry, and goals and targets were continually set from above. Participants in a 1973 conference on people's participation in development, which included many community development advocates, reached the following conclusion:

> Community development programs have not been able to involve the community in a process of defining together its needs ('conscientization'), to create a popular movement, to tackle those needs (organizing) and to begin the necessary action (planning, implementation, evaluation, etc.) Traitler 1976 p 2)

The reason for such failure lies in part in how the term "participation" was understood. Participation was understood in the following sense:

> Community participation was usually understood as the participation of the local people in a programme introduced by some agency for the development of the community. Thus, the community development approach is one in which the change agent makes a conscious effort to motivate *the*

> *community to participate in a programme which is based on the change agencies' understanding of the needs of the community but is planned largely in isolation of the community.* Neither the change agent who has direct contact with the community, nor the community itself, are given the primary responsibility for their own development. The concept of awareness is limited to providing the community with information that will satisfy assumed needs. Generally the information is technical and sectoral: education, health, nutrition, farming practices, etc. Motivation is then understood as getting the people to act on the basis of the information. In essence, therefore, the community development approach is an approach *for the* people rather than *of the* people (AD/FAO 1973 P. 17).

Rural education programs have been criticized in much the same terms as community development efforts. A study commissioned by the World Bank concluded that such programs have failed to make a dent in the "poverty of rural learning environments" for three major reasons: (1) lack of integration; (2) widening of the gap between rich and poor; and (3) overcentralization (Coombs 1974). The study stressed the obvious point that education is a necessary and often highly productive element of rural development when it combines with other essential factors; but all by itself it can neither create nor accelerate development (Coombs 1974). A farmer training program, for example, is vastly more productive when it is linked to other local support services (e.g., credit, supplies, marketing)

Coombs (1974) and Morss (1977) find that rural education programs have disproportionately benefited those who are relatively better off, while neglecting the more disadvantaged.

A third theme of the Coombs (1974) study focused on the importance of decentralizing rural educational programs so that they can be adapted to the needs and conditions of each community and thus "unleash the enormous latent resources, human energies and enthusiasm that are the absolute essentials for effective rural development" (Coombs 1974 p 237) The same authors in a subsequent study noted that this goal is not necessarily achieved through decentralization. A case history of the Bangladesh Rural Advancement Committee (BRAC) highlights the early failings of its educational component (Ahmed 1977) BRAC was started in 1972 as an emergency relief measure. It was strictly a home-grown and locally staffed and managed program. The program consisted of a range of activities, including functional education, health and nutrition, family planning and agricultural development.

Illiteracy was seen as a major problem by the early organizers of BRAC. A literacy drive begun in the early days planned to train 300 local men and women as teachers to work in 255 centers in 200 villages. The campaign was conventional; it concentrated on skills of reading and writing, used a classroom setting with traditional didactic techni-

ques, and tried to introduce topics of interest in rural areas. Initial enthusiasm was high; over 5,000 villages enrolled. Interest, however, waned rapidly. Only 5% of those enrolled completed the six-month course.

The author of the case stated:

> A combination of factors contributed to the failure of this educational effort. An unusually high level of flood in 1973 not only damaged many of the centers and made them unusable but also caused extra economic hardship to the people of the area. BRAC launched the campaign on the assumption that there was a high level of demand for literacy and all that was needed was to provide the opportunity to attend literacy classes. Very little attention was given to appropriate teaching techniques for adults, and the lessons were prepared on the basis of preconceived notions of what was good for the learners. The most serious problem was that the learners soon discovered that the acquisition of literacy skills required considerable effort and time; yet these skills and the reading lessons bore little relevance to the immediate and burning problems of their life. Customers for the literacy courses, therefore, declined sharply (Ahmed 1977 p 10).

Advocates of greater beneficiary participation in rural education attribute much of the failure of programs to the fact that "extensionism" rules, at the expense of education at all levels of the program. The comparison which Freire makes between extension and communication is important:

> . . . the basic objective of the extensionist working on extension, in establishing permanent relationship with the peasants, is to try to change their "knowledge" (related to their action on reality) for other knowledge. This other knowledge is that of the extensionist . There is in the concept of extension an unquestionable mechanistic connotation, inasmuch as the term implies an action of taking, of transferring, of handing over and of depositing something in something However, knowledge is not extended from the man who considers that he knows to those consider they do not know, knowledge is built up on the relations between man and the world, relations of transformation, and perfects itself in the critical problemetization of these relations. . the effort required, therefore, is not one of extension but conscientization (Freire 1971 p 16)

The challenge to planners of rural education programs, therefore, is to help the creation of conditions that invite and encourage greater beneficiary participation so that education, as it is defined by Freire, has a chance to thrive The challenge is not to over-plan. The recent literature on rural development participation provides useful guidelines for developing conceptual tools to meet this challenge. It also provides some encouragement to those who seek greater

beneficiary participation in the development process. The scope of the encouragement, however, is narrow; and it is difficult to feel completely confident that rural education programs will escape the legacy of merely pretending to foster participation.

2.1 *Specifying the Meaning of Participation*

In order to encourage beneficiary participation, project planners must first specify what is meant by the term, and then decide what the appropriate and feasible levels of participation are in particular circumstances. The process of deciding what is meant by meaningful participation in individual cases is very complex. In the final analysis the only valid judges may be the beneficiaries. The process of defining participation in the abstract, is not difficult. (The following section draws on Morss, Uphoff, and IAF 1977).

The 1973 Foreign Assistance Act suggested that participation can be identified under four headings: (1) decision making; (2) implementation; (3) benefits (and external diseconomies); and (4) evaluation. This basic scheme can be elaborated upon considerably.

The Rural Development Committee at Cornell has attempted to be most specific. Their framework for analyzing project participation is presented in Figure 13 1. Decision-making is broken down into three types: (1) initial; (2) ongoing; and (3) operational. *Initial decisions* are elaborated in the following way:

> (1) *Where Decisions:* Decisions on the *location* of specific project activities or sub-project units. These decisions are most crucial in projects involving *construction* such as schools and health clinics. But they may affect the location of services where establishing certain centers is involved. (2) *How Decisions.* Decisions on the *ways and means* of project implementation. These include (a) *strategy* — the specific approaches to be taken to meet the project's goals and to help resolve the problem that led to the formulation of the project; (b) *financing* — whether the project shall be financed in whole or in part with local resources, and if so, whether in cash, in labor or in material contributions; (c) *staffing* — whether personnel shall be drawn in part from the community? (3) *What decisions.* These include, what will be the terms of service; to whom shall staff report; (a) *standards* — what quality or coverage shall be sought, such as all-weather or dry-weather roads, universal enrollment or selective enrollment in programs; and (b) *enforcement* — what sanctions shall be involved to ensure contributions to or participation in the project, who shall be responsible for enforcement, and so on. (4) *Who Decisions:* Decisions on who will participate in the other phases of the project. Specifically, (a) *implementation* — who is required or expected to perform what tasks in carrying out the project; (b) *benefits* — who is eligible for the benefits which the project is expected to confer; and (c) *evaluation* — who, if anybody, is expected or authorized to make appraisals of project effects and success (Uphoff et al. 1979).

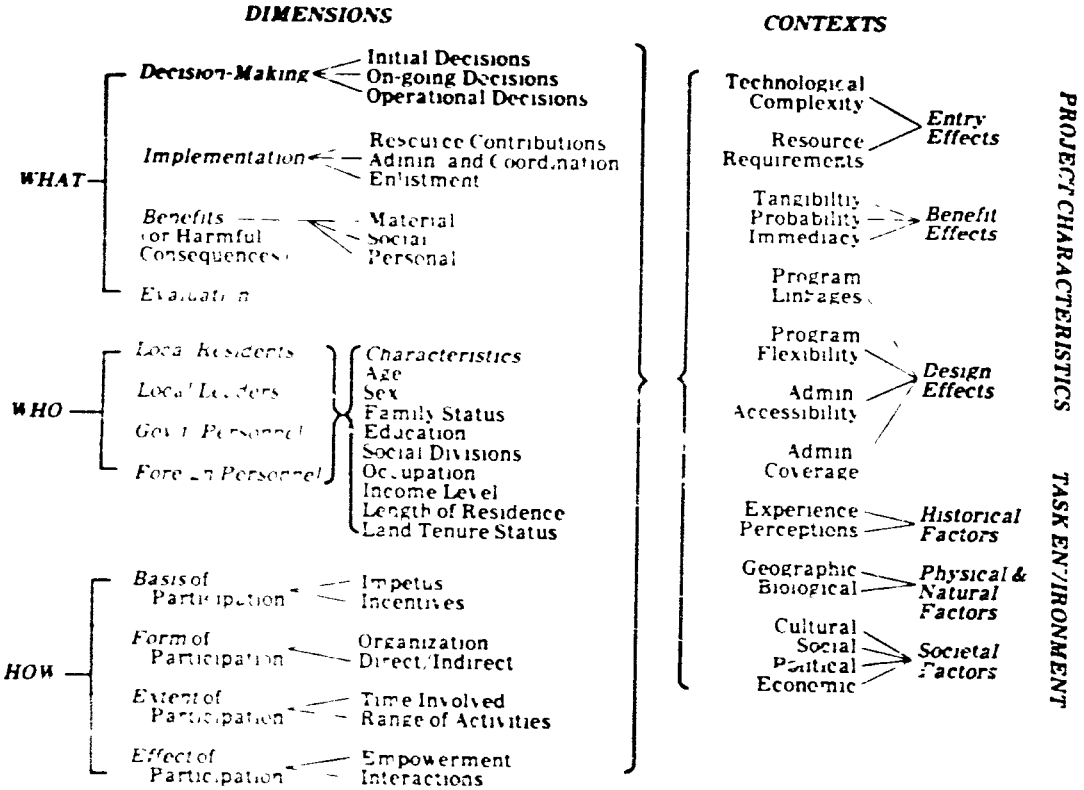


Figure 13.1 *Basic Framework for Describing and Analyzing Rural Development Participation*
Source. Feasibility and Application of Rural Development Participation (Uphoff 1979).

On-going decisions can include the following:

> (1) a continuing search for other needs and priorities that the project might respond to; (2) an evaluation of whether a project should continue or be terminated; and (3) a continuing elaboration of the structure and content of established activities, such as: (a) where decisions, (b) how decisions, and (c) who decisions

Operational decisions specified by the Cornell group are those relating primarily to organizational issues, such as deciding on the terms of services for project leadership, the where, when, and frequency of meetings and criteria for hiring and firing project personnel. The other three kinds of participation (i.e., implementation, evaluation, and benefits) are straightforward and described in sufficient detail in the two works cited

There is nothing novel about the scheme. Its major elements may already be familiar to most project planners and managers One further point is to stress the importance of the distinction between the initial and the other decisions, which are made at different times. Decisions are linked. At each stage, by definition, decisions already taken will cut down options in subsequent decisions Consequently, some early decisions are more important than others simply by virtue of the point in time at which they are made

The relative significance of a decision for an intended beneficiary can also be a function of the level at which it is made Using the AID Logical Framework Matrix (illustrated in Figure 13 2), we can differentiate between four project levels goal, purpose, output, and input. The schemas used in this field by analysts and planners are the heuristic models and methods discussed in Volume II, Chapter 15 For example, the goal of a project which trains cooperative managers can be expressed in terms of changes among the ultimate target population, namely, members of cooperatives and their families The purpose of the project can be expressed in terms of behavioral changes of one type or another among the immediate target population, i e , prospective students he output of the project would be the instructional events — practical exercises, classroom activities, television programs, etc — in fact, the delivery system which needs to be produced by the project in order for the purpose to be achieved The inputs are personnel, commodities, time whatever the assets or resources utilized

The strongest and most clearly causal links between levels, of course, are those between input and output levels The project conditions which must be satisfied for the output to be generated are relatively straightforward, identifiable and controllable The link between output and purpose is a good deal more uncertain and unclear. The problem of relating the characteristics of the teaching/learning environment to student achievement can plague all education pro-

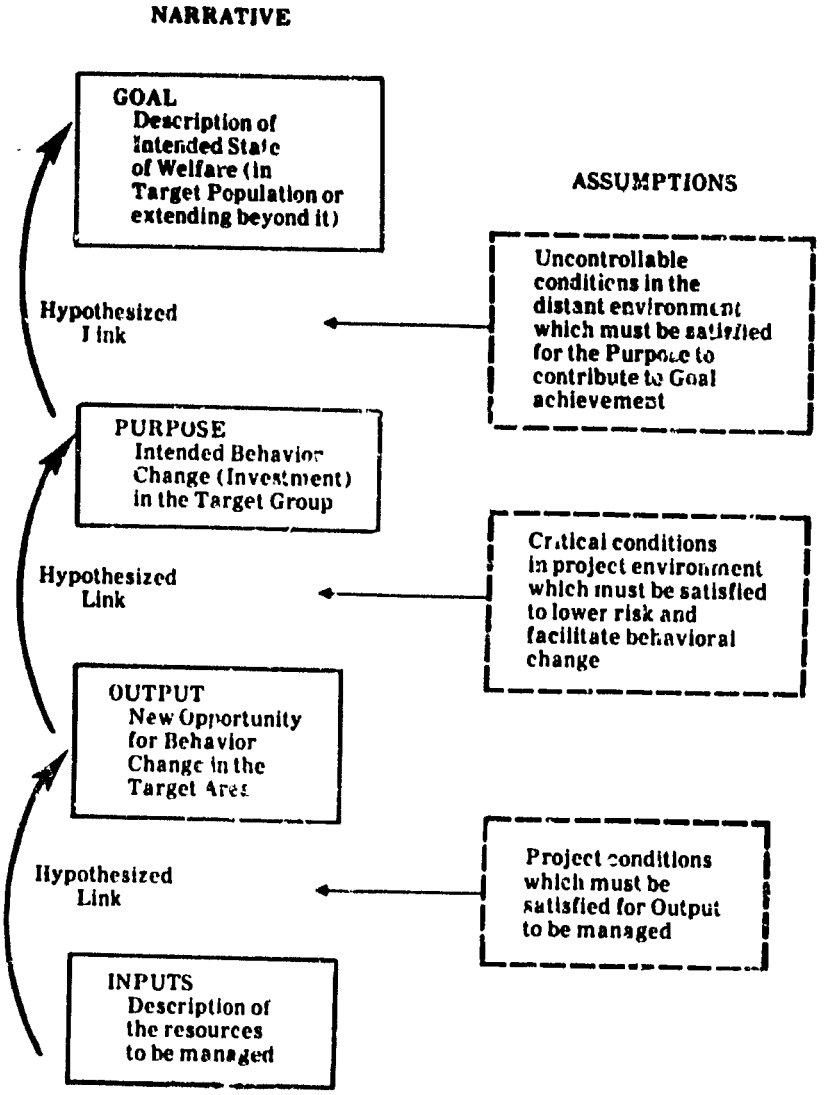


Figure 13 2 Logical Framework Links

jects. Assumptions are always made, either implicitly or explicitly; and the uncertainty of the educational planner becomes apparent, either by his own admission or by subsequent facts.

The creation of the final link requires assumptions about many events over which the planner has absolutely no control. Obviously, if a project goal includes changes among certain farmers, such as a rise in income, a host of conditions must be satisfied. The skills which an educational program can impart to intermediaries who work with the farmers constitute only a very small portion of the important conditions. The project environment also includes a considerable number of risks, and they should be as clearly articulated as are the assumptions about learning and teaching. For cooperative members, moreover, the only significant training-related decisions might be at the goal and input (e.g., who is to be trained) levels. Participation at the other two levels is likely to be left to the technocrats to determine.

Educational planners must also deal directly with the qualitative dimension of participation, namely, how effective the participation of beneficiaries is. The Inter-American Foundation distinguishes between different *forms* of participation in the following way:

(1) Presence: When presence is the form of participation, beneficiaries take active roles in only some aspects of a project and may be consulted before or during the activity. In some cases:

— The principal role is that of recipient of services, such as technical assistance, training, education, credit, or legal aid.

— They participate by supplying in-kind labor and may be formally or informally consulted on problem identification or implementation.

(2) Representation. When representation is the form of participation, beneficiaries have a mechanism for articulating their needs and preferences, and can apply leverage to influence policy.

— Beneficiaries participate indirectly in major decisions through elected representatives

— They influence problem identification, policy, priorities, operations, selection of leadership, allocation of resources and benefits, and choice of technologies.

(3) Control (endogenous): The third form of participation is one in which beneficiaries exercise direct and effective control over projects.

— Beneficiaries control planning and design of project activities, management, determination of policy, allocation of resources, technicians, technology, and share risks, profits, and expenses.

— They participate in major decisions through ownership, total or majority membership on key committees, peer arbitration grievance procedures and informal communications within the group.

(4) Control (exogenous): The final form of participation is one in

which beneficiaries become influential in regional or national policy formulation. This then is the context within which the ultimate aim of rural development efforts are pursued.

— Beneficiaries exert influence over major societal issues affecting them through networks, affinity groups and collective protests (IAF: 1977:87-88).

The Cornell group offers a scheme in which six levels of empowerment (from no power or influence to extensive power) are cross-classified by kind of participation. This scheme is presented in Table 13.1. Elements of either framework can be used to settle on a common language with which to make the abstract definitions of participation more concrete, thereby helping planners and project participants to define the meaning of participation within their own contexts. We turn now to a brief discussion of project and project-related variables that might affect the extent of beneficiary participation in any particular circumstance.

3.0 *Possible Determinants of Participation in Rural Development Projects*

At this point we can only speculate as to the factors that affect the quality of participation in any given project. (We assume that what is meant by better participation is, in part, greater and more direct control by beneficiaries over more of the important project decisions.) While further research is clearly needed, the literature on participation does reveal that some factors are more salient that others. The literature also has suggested several ways to categorize them (Uphoff 1979). We group those factors which seem particularly relevant to rural education programs into three categories:

Project attributes and project-participant attributes
Project characteristics
Project means and mechanisms

3.1 *Project Attributes and Project-Participant Attributes*

There are two project attributes, *accountability* and *dependency*; and two project-participant attributes, *critical reflection capability* and *shared values* (IAF 1977). Changes in any of these participation attributes can affect directly the quality of participation. The attributes can, in turn, be tied to specific project and project related characteristics and to project mechanisms and procedures. They can then be used to explain why, for instance, a particular project characteristic (e.g., "area intensity") might affect the quality of participation in a certain direction. We shall first define the four project attributes and then discuss both the sets of characteristics and procedures in terms of how they can affect the quality of participation in a project.

Table 13.1
Degrees of Empowerment: by Kind of Participation

	DECISION-MAKING	IMPLEMENTATION	BENEFITS	EVALUATION
NO POWER OR INFLUENCE	No information no opportunity to express views, no vote	No control over decision to participate or over resources for implementation	No control over benefits' amount or distribution, all received gratuitously	No right or opportunity to make evaluation of project performance
POTENTIAL POWER POSSIBLE INFLUENCE	Right to be informed prior to decision may express view but no right to advise	No control over decision to participate but some over resources for implementation	No control over benefits' amount but possibly some over their distribution	Ambiguous right or opportunity to express views on project performance
SOME POWER	Right to be informed prior to decision right to advise and expect consideration	Control over decision to participate or over resources for implementation but not over both	Some control over benefits' amount or distribution not over both	Recognized right or opportunity to express views on project performance
MODERATE POWER	Right to be informed and advise opportunity to modify or veto decision may participate in decision-making	Control over decision to participate providing some of the resources needed for implementation	Some control over both amount and distribution of benefits	Means and right to make some evaluation and to communicate it to the authorities
SIGNIFICANT POWER	Right to be informed and make decisions on program elements subject to higher authority's review	Control over decision to participate providing most of the resources needed for implementation	Substantial control over amount and distribution of benefits	Means and right to make serious evaluation and to expect it will be taken seriously by the authorities
EXTENSIVE POWER	Right to be informed and make decisions without any review	Control over decision to participate and over all resources needed for implementation	Complete control over amount and distribution of benefits	Means and right to make thorough evaluation and to get project modified (or terminated, if indicated by evaluation

Source. Uphoff, Norman (1979 P 106)

3.2 *Project Attributes:*

Accountability refers to the degree to which beneficiaries can hold others (usually outsiders on a project) responsible for their actions and can get their particular concerns listened to and acted upon. Accountability consists of both formal and informal means of allowing beneficiaries to influence the content and direction of an activity with resonable expectation of compliance by those in authoritative positions.

Dependency relationships refer to the degree to which an activity is contigent upon the tolerance or goodwill of an individual or group whose apathy or hostility could be debilitating or constitute a threat. There are at least three categories of dependencies:

- simple dependency: reliance upon others for goodwill or resources that can be withdrawn;
- critical dependency: reliance upon others for critical access or resources that are likely to be withdrawn,
- personal dependency: reliance upon one key person within the organization

We live in a world full of dependency relationships, and many of them are not always bad. Often the reliance upon a central figure, for instance, is necessary initially. "A phased disengagement from him, with the benefit of a group maturation process and needed skills transfer, is often preferable to instant independence" (IAF 1977: p. 80). In most cases, though, the degree of dependency is probably inversely related to the quality of participation in a project.

3.3 *Project-Participant Attributes*

Critical reflection capability can be defined as the ability on the part of a participant group to assess the consequences of past and future action, to discern the risk, the meaning, the costs and the benefits of competing problem-solving approaches, and to choose among them. It is also related to the participants' understanding of themselves in a larger context — of being protagonists in a region and country.

Examples of low or negative critical reflection capability are: (1) traditional assumptions are left unchallenged; (2) no concern is shown for moral support of activities; (3) traditional type of education is favored, rather than a foundation which builds awareness of the person's relationship to society; and (4) training inapplicable to specific needs is accepted. Reflection must be strengthened, if more effective participation is sought. (The last section of this paper will discuss how people's critical reflection capability might be strengthened).

Shared values include compatibility of vision, beliefs, and purpose which, it is argued, facilitate coherence and coalescence among project participants and between beneficiaries and project leadership.

Table 13.2
Project and Project-Related Elements — A Summary

CHARACTERISTICS	*MEANS & MECHANISMS*	*ATTRIBUTES*
Project-specific	*Organizational and Administrative*	*Accountability* (increase)
area-intensiveness (affects shared values, number-of-beneficiaries dimension, two-way communication)	*point of contact* (affects all attributes) - formal contact	degree to which beneficiaries can hold others accountable for their actions and can get their particular concern listened to and acted upon
external staff (affects dependency and accountability)	*two-way communication system* (affects all attributes) - structured - built from bottom - group participation - direct participation - flexible	*Dependency* (decrease)
technological package (affects two-way communication, shared values, dependency)	*accountability system* (affects all attributes and control dimension) - leaders elected and changed on basis of their performance at sub-project level - salaries of and work by professionals and paraprofessionals on projects controlled by local groups. - reliance upon market-like pressures	degree to which an activity is contingent upon the tolerance or goodwill of an individual or group whose apathy or hostility could be debilitating or constitute a threat
comprehensiveness (affects number-of-beneficiaries dimension, nature of two-way communication system)		*Critical Reflection Capability* (increase)
technological complexity (affects dependency)		ability to assess consequences of past and future actions, to discern risks, meaning, costs and benefits of competing problem-solving approaches, and to choose among them
resource requirements (affects dependency)	*External Linkages* (affects dependency)	*Shared Values* (increase)
Project-environment	*Training & Education* (affects all attributes - leadership - specific - tied to income generating enterprise - consciousness-raising	degree to which visions, beliefs, purposes are shared by participants
physical and biological (affects extent and scope of activity dimension and numbers-of-beneficiaries dimension)		
social/economic/cultural (affects shared values, external linkages)		

This synthesis which can take many forms underlies much of the risk and benefit-sharing behavior critical to effective participation.

If we accept the direction of the effects of the four attributes, we can conclude that project planners who wish to encourage participation should probably strive to increase accountability, decrease dependency, increase critical reflection capability, and increase shared values. We turn now to a discussion of ways and means to increase effective participation. We will also discuss project-related characteristics which should be taken into account by planners.

4.0 *Ways and Means of Encouraging Participation*

The quality of participation in education projects seems to be affected by three sets of conditions: (1) characteristics specific to the project's environment (and in the wider social, political and economic environment), (2) characteristics specific to the project, and (3) procedures through which the project is organized. The following discussion is summarized in Table 3.2

4.1 *Project-specific characteristics*

Area-intensiveness Morss's study (1977) found that one characteristic which appeared to influence the level of local involvement in rural development projects was project focus. Of the projects analyzed in the study, all ten that had a high local involvement were also area-intensive One explanation may be that concentration in a limited geographic area makes it possible to bring all of the target population into a project It may also help identify local leaders and their manifold influence through traditional patterns of cooperation. Participants in each sub-project may share a common socioeconomic status, or come from the same cultural or tribal group This may increase communication between participants and project staff and subsequently lead to increased accountability and decreased dependency It may also increase the probability of shared values The same holds true for the proportion of beneficiaries participating Thus, the quality of participation may be affected directly in a positive way, by moving toward 100% participation, and indirectly, through the strengthening of critical project and project-participant attributes.

External staff In projects with high local involvement, non-government nationals may better play the role of the chief intervening agent Evidence from several sources suggests that government officials are more apt to hold the view that they know what activities benefit farmers and how local systems function This attitude usually results in considerable government-directed input during the project design phase, and in a one-way, top-down communications system.

If this is true, the presence of government agents would seem to increase dependency relationships and decrease accountability.

Technological package. The Morss study also suggests that projects with high local involvement start with "unproven" technological packages. The first step in these projects is for project staff and farmers to experiment with the packages. Beneficiaries, consequently, play an important role in providing ideas for the project and for tailoring ideas so that they become more workable under local conditions. Thus, the quality of active participation may be affected directly in a positive direction. One would also surmise that the dependency relationships in such projects are more two-way. Finally, the fact that beneficiaries do get involved in experimentation very probably increases their critical reflection capabilities. In contrast, in many cases with low local involvement, the projects began with well-established technological packages and predetermined organizational arrangements for implementing them.

Comprehensiveness. This characteristic refers to a project's focus in terms of its function and purpose. Many successful organizations start with a single purpose (examples are provision of credit, organization for development, promotion of a specific crop enterprise, or initiation of a community self-help project) and evolve into a multi-purpose organization through the creation of functional committees or related organizational structures. This orientation appears to result in more direct participation by more individuals. It also appears to result in increased critical reflection capabilities of groups directly involved in determining the direction of projects in which they are involved.

Technological complexity. The essential issue here is not the level of technological complexity *per se*, but the difference between the technology of a project and the level of technology with which persons in the project area are familiar. There are three major categories of technology: scientific, administrative, and organizational.

Relative complexity seems to have a negative effect on participation. Administrative technology is often a block because of demands for complex skills in such areas as accounting, planning, and market analysis. Scientific, technological differences can be illustrated by the example of artesian wells. It is unlikely that beneficiaries can play much of a role in deciding where the wells are to be drilled, or in the drilling process, except as manual laborers. Peasant associations that require regular meetings, by-laws, rules of order, and reports, are offered as an example of organizational technology that can inhibit participation. Evidence suggests, therefore, that relatively complex technologies decrease representation, accountability, coherence, and coalescence, and increase dependency.

Project designers and planners often have considerable choice in the matter of minimizing organizational complexity, and they often have more choices than they might think in chosing simpler technologies. Schumacher (1973) has studied this problem in the framework of general development, and Seybolt (1969) describes educational alternatives forced by circumstances in China.

Resource requirements. There are examples of project formulation that limit participation by setting resource preconditions that exclude various members of a community. Examples are credit schemes requiring collateral, and mechanized cultivation projects requiring participants to have a certain minimum amount of land to be eligible for tractor services. In rural education projects, learning time is a very critical resource requirement. This suggests that the effect of certain types of resource requirements can lead to a decrease in the quality of participation by precluding an increase in the proportion of local beneficiaries who participate. On the other hand, contributions themselves are an aspect of participation. Flexible and sensible calendars and school program schedules are points where planners can influence this.

4.2 *Project-Environment Characteristics*

Physical and biological. Physical and biological characteristics such as climate, weather fluctuation, water supply, insect and animal pests, can often impinge directly and decisively upon the different kinds and degrees of participation which can be expected in a particular region. The quality of participation in the more arid parts of Pakistan will not be as great as in the more benign areas of Punjab Poor soil fertility for "upland" farmers may mean they must work harder than lowland farmers and that they have less time for participating in farmer organizations and other project activities (Uphoff 1979). Variations in physical environments are also important to consider, and to make generalizations across agro-climatic zones is dangerous. In Kenya, for example, participation in a hybrid maize project within a single district of the country was influenced more by where the farmer lived (in what zone) than by all other factors (Uphoff 1979) This example suggests that physical factors put an upper limit on the quality of participation in any particular area by limiting the numbers of participants and the extent of their involvement In the planning of formal and nonformal education programs for rural areas the effects of geography and climate on participation can be taken into account in area planning and school mapping.

Social/economic/cultural Mention was made earlier that the area-intensiveness of projects often results in participants sharing a common socioeconomic status Much has been written to suggest that the equitable distribution of wealth within a project area is a key ingredient in successful rural development projects Populations that are homogeneous in terms of their interpersonal and intergroup behavior are more conducive to participation than heterogeneous ones. The cultural norm of decision making by consensus, as opposed to majority rule, is usually cited as injurious to the quality of participation because it helps the few landed or wealthier families in a project area to continue their dominance.

Many socioeconomic and cultural factors must be considered in any particular circumstance, but from the frequency which it is cited in the literature, the degree of socioeconomic homogeneity seems important. Obviously, it is directly related to shared values. Decision-making norms, as cultural values, can be related to two attributes, accountability and dependency. The manner in which they are related will be examined in the following paragraphs.

4.3 *Project Strategies and Mechanisms*

Organizational and administrative. The quality of participation in the typical rural education project appears to be more a function of organizational and administrative strategies than of any other single factor. This assumes that the will is there in the first place. There are three types of program design issues that planners might consider incorporating into project designs.

(1) *point of contact* — The point of contact between beneficiaries and project staff (after a series of discussions which refines ideas) should probably be a formal one, for example, a social or training center, or an organizational unit. The need is for continuing communication. And this is facilitated by the early establishment of a point of contact. In other words, it means that demands of the beneficiary can be articulated before much action is taken.

(2) *two-way communication system* — The initial point of contact should evolve into a structured two-way communication system — one which ensures a continuing dialogue with beneficiaries and which affects project design and implementation.

Communications programs such as market days, demonstration days, and mobile audio-visual units do not really constitute a two-way system. An effective communication program is most probably built from the bottom: where problems are discussed at the local level and transmitted to the regional and national levels by chosen representatives.

Two characteristics of formal communication structures can affect the quality of participation: group (as opposed to individual) participation and direct (as opposed to indirect) participation. It is generally assumed that direct participation is better; that direct personal involvement is less ambiguous than mediated forms, and "that one would expect the growth of individual capabilities to be greater" (Morss 1977). The scale of a project can affect both the need and possibilities for direct involvement. But is is clear that both direct and group participation increase the accountability of projects and, consequently, the quality of participation in them. Planners can design to maximize this. Monitoring is another problem.

(3) *program flexibility* — Evidence seems to suggest that regardless of who is involved in the initial design work, the more successful projects continue to acquire knowledge that is used to affect

project design during the project implementation state (Morss 1977). If everything about a communications structure is rigidly determined in advance, there is little, if any, scope to increase participation beyond its original level.

Thus, an effective two-way communication system, structured, yet flexible, and based upon principles of group and direct participation, is a critical component whereby the accountability of a project is strengthened.

4.4 *Accountability System.*

The purpose and function of an accountability system should require no further discussion, but the indicators of an effective accountability system may merit clarification. The following are examples of accountability systems which have apparently worked well:

- Leaders are elected and changed on the basis of their performance at the sub-project level
- Salaries of and work by professionals and para-professionals on projects are controlled by local groups
- Allocations of project resources are controlled by beneficiaries.
- Distributions of benefits are controlled by beneficiaries
- Beneficiaries are in the majority on key oversight committees.

External linkages. One source suggests that the signs of negative dependency manifest themselves in projects where intermediaries discourage beneficiaries from forming linkages with other base groups. These linkages, it is felt, are a critical means to decrease dependency upon higher level groups and agencies who control key resource inputs of many projects These links and processes can be pre-planned.

Training and education Training is often cited explicitly as a means to increase the quality of participation Characteristics of training components of projects with high local involvement often include the following:

- Training is directed at local leaders and young farmers
- Technical training is tied to local and income generating enterprises
- Training is specific and intensive.
- Training features consciousness-raising experiences

There is no argument that training leads automatically to increased participation. Available evidence, to be discussed in the next section, suggests that critical reflection capabilities can indeed by strengthen-

ed through program-specific and consciousness-raising educational experiences. (See Table 13.1 for summary).

5.1 *Beneficiary Participation in Rural Education Programs — The Promise and the Reality*

At the micro-level of rural education programs in many less developed countries there are encouraging examples of how local initiatives and participation can be strengthened and encouraged. Beyond these individual and often isolated cases, however, there is little reason to be sanguine that constant and fervid exhortations for greater participation will be taken to heart. The over-all political and operational realities of existing rural education programs most often simply exclude intended beneficiaries from the decision-making process. This is clearly the case in the formal educational systems where almost every important curriculum or structural decision is made at great distances from the point where they are carried out It is true in most large-scale rural projects as well.

Encouraging signs of a participatory approach to educating rural adults are exemplified in two programs in the Philippines and Kenya. These programs followed this sequence (*World Education* 1979 pp 1-3):

— Village leaders are consulted, and their cooperation and approval sought as prerequisites for initiating the program in their village.

— Villagers select a local person to be trained as the village's "educational coordinator" He . she is provided a nominal sum by the project for an initial period of time.

— The project field staff — both the full-time "facilitators," who have experience in community development, and the coordinators, who are village residents — take part in extensive training in the learning approach during a field operational seminar. Facilitators and coordinators review learner-centered methodologies, materials development, and evaluation procedures. As each of these is discussed, the trainees learn needed skills, and then have the opportunity actually to practice them and try out materials in a village setting.

— The approach is then implemented in each village. The coordinator explains to the adults in his/her village that the program involves a high degree of learner participation, both in the learning experience, since there is no traditional teacher who supplies all the answers, and in the decision-making process (topics to be covered, program structuring). Also, the coordinator explains that literacy is not a prerequisite to participation, answers any questions about the program that may arise, and invites the villagers to attend the initial sessions and decide for themselves whether to join

— In carrying out an initial assessment of learners' needs in each village a team composed of a facilitator and a coordinator sets a common meeting place and engages the villagers in a variety of informal, information-gathering activities (i.e., having

them tell stories about pictures, react to taped, open-ended dramas, and answer projective questions).

— In analyzing data from the needs assessment activities, the facilitator and coordinator look for common themes in learners' interests. Based on these themes, they develop initial learning experiences and materials that give the learners the opportunity to determine which topics are of greatest interest to the group and which, given the local resources available, are feasible to pursue.

— The field team, consisting of a facilitator and a coordinator, then conducts the learning sessions, at a time and place chosen by the learners. In addition to providing new learning opportunities, each session serves as a needs assessment process for the subsequent one. That is, instead of designing the total curriculum in advance, the field team plans one lesson at a time, thus being able to pursue a specific learning interest as thoroughly as the group wishes, to change the focus of the sessions as the group identifies a new interest, and to assess the benefit of the project to the community in general on a month-by-month basis. Learners' interests often include, for example, nutrition, health care, generating income

— Learners not only identify the topics to be covered during group meetings, but also decide the structure of topic presentations. For example, the group handles such activities as forming small groups to pursue specific learning interests, using local technical resources and facilities, and compiling an inventory of community resources This way learners gain experience in identifying and using local resouces on their own The facilitator and coordinator use innovative learning materials that do not require reading skills and that encourage group discussion, decision, and action, in order to help the group set objectives, recognize problems to be solved, and plan strategies

— Field teams meet regularly with central project administrators to receive help in responding to changing group interests, identifying resources, and preparing materials. At these meetings, the field teams exchange and develop new ideas and techniques.

— For the first few months the facilitator and coordinator work as a team, the coordinator, in effect, apprenticing with the facilitator After six to eight months, the coordinator takes over, and the original facilitator moves to a new village The group begins to pay the coordinator for his or her services to the best of its ability at this point

Descriptions of this process as it occurred in one village in the Philippines and in six villages in Kenya are given in the Appendix at the end of this chapter. The evaluation of the program highlighted the importance of the facilitator/coordinator and certain characteristics of the learning groups in the process of successfully making decisions, taking action, and mobilizing outside resources.

Projects have ranged from having extensive to limited success: two have been highly successful, two enjoy a good amount of suc-

> cess, and two have had limited success. In projects with limited success certain factors appear in common: the coordinator is not a recognized leader; one or two group members try to dominate, which results in group dissension; or assistance from official sources has not been consistent with the strict self-determined, self-help concept of the approach. On the other hand, the two most successful groups have by midpoint had the benefit of skillful, resourceful coordinators and relevant, appropriate outside assistance (*World Education* 1979 pp.43-44).

In addition, teaching aids

> seem most effective when they either present a problem currently being experienced by the group as a group, address a decision that rests with (is in the control of) the group, or allow members to compare their situation with that of others. Aids are least successful when the drawings or situations have unclear meaning (a chicken looks scrawny but not sick) and when the facilitator or coordinator, even inadvertently, imposes his idea of a solution (Traitler 1976 p. 5).

6.1 *Conclusion*

More research must be conducted within projects, and in comparing projects, in order to develop a clearer and more comprehensive model of the important participation variables. The model may be a simple schema which shows relationships among the key variables of participation, and helps indicate the way policies and programs can be designed and planned to influence variables so that participation is stimulated and sustained. The experiences of the Kenya and Philippine programs described here suggest that field research can yield operationally useful information and, in some cases, provide grounds for encouragement. When the enquiry goes beyond the project and micro-level insights, and on to major obstacles, some aspects of participation become less relevant to educational planners, because important variables (income or land distribution) are beyond their control. Beyond the micro-level, participation becomes overtly political, requiring in many instances major structural changes. If land reform is the issue, a few participatory classes which attempt to promote functional literacy through the teaching of improved agricultural practices will not attract the attention of adults preoccupied with economic survival in an unfair world.

A serious effort to help people become prime agents of their own development must accept the fact that local experience will shape decisions, organizations, and social structures that differ considerably from what outsiders might expect. For donor agencies this implies that beneficiaries should not be required to conform to the work rhythms of the agencies. Donor agencies, however, have long histories of organizational experience and mechanisms of action tested in the light of their own structures which they are eager (often for good reasons) to put at the disposal of beneficiaries. They also have a host of

operational and financial requirements that constrain their own work patterns. All of these often serve to prevent these same beneficiaries from having the time to gain their own experience, the freedom to fail, and the right to waste in order to learn. There is also the supreme irony when the agencies want local participation but local people do not. Here the canons of true participation legislate accepting non-participatory forms until opportunities for helping to nourish other forms appear. More often this is a problem of pace and timing, rather than an absolute barrier, but it can provoke enormous frustration. This is perhaps the true test of the approach.

Donor agencies and the wider sociopolitical environment of the beneficiaries shape rural education programs. The obstacles which the agencies and the circumstances create to effective participation beyond the micro-level are immensely complex, often intractable. When the political will exists to change these limiting conditions, educational planners can help in identifying and creating conditions which sustain, rather than overwhelm, beneficiary participation in rural education programs. It is doubtful that planners, policy makers, or program operators from outside can ever directly fashion participation in hands-on fashion. This limitation may be difficult for social activists to accept. Planners must design monitoring so that there are points at which project officials can assess their own natural tendency to intervene and thus to reduce participation in the very act of attempting to nurture it.

APPENDIX

The World Education Evaluation of Tototo-Kilemba and PRRM-Sam at Midpoint. (Abridged from source).

TRACING THE LEARNING APPROACH

Before describing project outcomes and processes in general, we will isolate the learning approach as it occurred in one village. This village was selected for tracing because the field team reports regarding its activities are particularly complete. We know from the preceding description that certain things characterize a self-actualizing method *program.** The characteristics include community-wide support, learner-determined priorities, and an active learning approach. The self-actualizing method requires a certain set of conditions and a certain *modus operandi* in order to be effective.

In order to determine learner priorities and actively engage participants, the facilitator and coordinator must utilize materials and an approach in each learning session that are "situation specific," encourage immediate group problem solving in order to reach a group-identified goal, and foster learner independence and self-reliance. The term "situation specific" means here that the objectives for each learning session develop from one meeting to the next out of the real problems faced by the group in attempting to reach its goal. Problem solving here means reaching agreement through dialogue and discussion, developing the strategies, finding the resources, and carrying out the tasks necessary to move toward the goal. Independence and self-reliance mean that the group will act in its own behalf, make its own decisions, and maintain control over the process of reaching the goal it has set, using outside resources and expertise as it chooses.

It is helpful to understand how this kind of learning approach evolves in an individual group in order to see all of its dimensions. We will therefore look at a village example.

The village we are tracing is Village 12 as described in the "Project Outcomes" section of the Philippine chapter of this report. The members of Village 12 have initiated two main projects: pig dispersal and broiler production. To see how the learning approach unfolded, we will outline the activities that took place at each meeting during a seven-month period.

*These characteristics are described at some length in the project background monograph, *Education for Development and the Rural Woman, Volume I*

Meeting One: Although members already knew each other, the facilitator/coordinator team felt it would be a good idea to begin the meeting with a warm-up activity that would give each person the opportunity to express his or her ideas aloud to the group in an easy, comfortable way. This was important since the team also wanted to ask group members to prioritize their learning interests during the meeting. It seemed a good idea, therefore, that everyone have the initial experience of speaking out in the group and giving reasons for selecting something that interested them.

The team chose to engage members in a group game called the "Get Me" exercise to provide this initial experience and create a relaxed climate for the meeting. Group members were asked to scout around the meeting place, select something they liked, and explain their choice to the other group members. There was much laughter and good spirit as everyone chose fruit, stones, a leaf, a can, or some other item to discuss.

After this game, giving members an opportunity to speak out, the team spread about on the ground 25 pictures drawn to show people performing a wide variety of daily activities all practiced in rural Philippines but not necessarily in Village 12. Members were given ample time to look over the pictures, examine them closely, and discuss among themselves what the people depicted were doing and the relevance of such activities to them.

Then the team asked the group to select the pictures, if any, that showed things they were most interested in and might like to learn something about. Fifteen pictures were selected and group members gave their reasons for their respective, and frequently collective, choices. The team then asked the group to choose from the 15 pictures the one that most closely represented what they would like most to learn about or do as a group. After an extended discussion, the group selected an activity known to be lucrative, if difficult: pig raising. The team then asked the group if they would like to meet again in few days to pursue this interest, and members said they would.

Meeting Two: After beginning a traditional Philippine warm-up activity, singing, and while it was talking place, the team put around the meeting place posters showing different kinds of pigs, systems (individual and cooperative) for caring for pigs, and materials needed for a piggery project. After the group had studied the posters, the team played a tape recording for the group — an open-ended drama about two women who raise pigs. One is knowledgeable about pig management, the other is not. The team then invited discussion on the fate of the two women and asked the group to consider in what ways the two women were different from each other. After a time the team asked the group what relevance the story held for them, and then members began to outline the kind of things one needs to know in taking on a piggery project.

The next activity introduced was a planning exercise called "Building a House," in which teams are required to construct a hypothetical village house and the elements of planning are illuminated. During this exercise, the group discussed several ideas: the benefits of careful planning; pros and cons of cooperative endeavor and individual projects; the range of materials needed to begin; and the need for initiating action and mobilizing existing resources. At the end of the discussion, group members agreed to scout around their community during the following week to discover resources available, if any, for the pig project.

At this meeting as well as the first one, many residents participated — nearly 40, if all of the curious passers-by who joined in the group are counted. The parents' club of 15 members was the intended learning group, but the meeting was open to the public. As a result many residents stopped by to see what was going on, and most of those who appeared for this second meeting were convinced that PRRM was going to give them pigs, although this was not the plan and had never been said to be the case. The expectation is not unwarranted, since many agencies operating in the rural areas do give supplies to village residents. When it became clear during the second meeting that resources were to be found and mobilized by group members themselves and that no widespread giveaway program was in operation, the curious and those with minimal interest stopped coming. The fact that PRRM would not supply participants with pigs was fully discussed, as was the project premise of self-reliance and independence. By the third meeting, just the original group of 15, all members of the parents' group, were left.

Meeting Four: Now that the larger group had settled down to its care of parents' club members, the team felt it would be a good idea to check whether piggery was indeed their primary interest, or if some of the initial participants had swayed the decision in hopes of being given a pig. The pictures used in Meeting One were again discussed and members confirmed their interest in the project.

A game called "Broken Squares" was introduced. This game requires optimum collaboration among participants. In a discussion that followed, members reiterated to each other the need for each one to take responsibility in the project. The coordinator reported that some assistance might be available from an official agency but that this was not certain. The group decided to continue to search for assistance and determined that if even one or two pigs could be secured (either native or imported), they would organize a "dispersal schedule." This meant that an individual would care for a pig and when the pig had a litter, those piglets would be distributed to other group members.

Meeting Five; The team and group president reported that the sponsoring agency of the parents' group had expressed some interest in the pig dispersal project and would be willing to receive a proposal from the group. The team led the group in an exercise called "Sinking Boat"

in which participants are required to make decisions and set priorities. This process was then applied to the piggery project.

Meeting Six: The group now needed to make some important determinations. Their chances for assistance appeared good. The sponsoring agency said it could probably provide funds for the group to buy piglets. The team led members through another priority-setting exercise called "Traffic Policemen," which builds on earlier exercises. As part of the exercise, members had to analyze the implications of choices the game forced them to make and to describe the criteria they used to make each choice.

Meeting Nine: After a month's break, in which the first nine pigs were distributed and members had formed a daily routine of caring for them, the group held another meeting. In the interim, the team heard that a government agency was making monies available to community groups for special projects, and that because of its previous success, this group stood a good chance of receiving some funds for a second project. The team again began the meeting by displaying the range of pictures showing people engaged in various activities. After much deliberation and discussion over the drawings, group members decided that they wanted to begin a poultry project and raise broilers for sale. With their previous experience in project planning, they moved ahead rather quickly.

Meeting Ten: The team began the session by introducing an exercise called "The Impertinent Pert Chart." This process illuminates eight major steps in planning. The group members used the procedure to plan their system for carrying out the poultry project They decided that, initially, several individuals would care for the broilers under the club's supervision. Chicks would be given to other members when they had coops ready to receive them, and some proceeds from all sales would go to the club treasury.

Project coordinators were selected, and the group asked the team to write down their project plans, which would serve as a proposal to submit to the government agency. Members agreed to carry on with the project whether or not funds were forthcoming from this particular agency. They also selected a local person who knows about poultry raising to conduct care and management sessions. The group coordinator, who also knows a lot about poultry raising, was asked to teach these sessions.

Meeting Eleven. Group members who had attended the government agency workshop reported that the group's project did fit the criteria described and that they had been encouraged to send in their plans.

Meeting Nineteen: The group leader reported that money for poultry was probably forthcoming from the government agency, but that it might take several weeks. Group members decided after some deliberation to submit their proposal to one or two other organizations while waiting for a response from the first, and to guard against a

negative reply from this agency. Then an on-the-spot decision was made after limited discussion: to cultivate mushrooms while waiting for the poultry project to be funded. Members asked the coordinator to contact a resource person from PRRM to come to the group and demonstrate mushroom culture.

Meeting Twenty-Two: Only three days later the group leader and coordinator called this meeting to tell members that they would receive start-up funds for their broiler project from the government agency. The coordinator then led an open discussion reviewing the initial steps of the club's plan for buying and raising chicks and posing questions about how the plans should be carried out. After some deliberation, the group made three major decisions: to scout for market outlets and other sources of stock; to identify the first recipients who would, as a criterion of selection, agree to build coops; to ask each recipient to sign a contract — based on the piggery project contracts — agreeing to abide by the policies of the club's poultry proposal.

CHAPTER 14

Broad Trend Analysis and Planning: Toward Alternate Futures

RUSSELL G. DAVIS

1.0 *Introduction: The Theme and Content of this Chapter*

Planners who deal with the near-term and futurists who deal with the distant future have their perspectives shaped by their values and ideology. Here we shall illustrate the issue by examining the values and the analytical framework of a group of scholars and commentators whose social perspectives are variously referred to under the terms "alternate futures," "counter economics," and "limited growth" . . . This otherwise varied group has a central vision of a future of depleted resources, degraded environment, and declining quality of life, unless planners and policy makers escape from a narrow focus on economic growth and view development in a broader ecological framework.

The major theme of this chapter is that present values shape all views of the future by planners and futurists alike. There are a variety of frameworks or perspectives — economic, social, political, and ecological. No one perspective has the depth and comprehensiveness to serve as an exclusive guide for social planning. The future will be shaped by competing economic, political, and physical forces. There are appropriate systems of analysis for studying each of these different kinds of forces which will shape the future, but there is no overarching system of thought or objective viewpoint for evaluating and judging among competing social forces. The ecological framework has the same lack of depth and comprehensiveness as economic, political, and social frameworks. In all frameworks, population is a central variable.

The task of the social analyst and planner is to identify and understand the forces which will shape the future. These forces will conflict. Planners and social analysts cannot control these future social conflicts. There is no universal system to guide arbitration among conflicting social demands on the future. Conflicting forces that will compete to shape the future are examined in the final section. The forces that

are identified and the characterization of these forces and the conflicts among them are shaped by the values of this writer, and this is the theme of the chapter.

1.1 *The Planner and the Futurist*

Planning for the future, even for a near future of three to five years, presents theoretical, methodological, and practical difficulties that should worry any sensible analyst. The second volume of this series on planning explains and exemplifies the application of the systematic forecasting techniques: cohort and time series analyses, and extrapolation and projection based on trend analysis and curve fitting. Here we discuss the possibility of using more speculative approaches and methods to track natural, social, economic, and political forces, and to trace out broadly their consequences for the future.

We will range beyond the application of trend analysis for forecasting the near future in plan documents, and intrude into the domain of the futurists who work with forecast horizons of ten to fifty years.

Our particular interest will center on the work of a group of economists, social commentators, and futurists. Members of this loosely defined group may be called "alternate futurists " "counter economists," and "limits of growth" analysts. They observe a present condition of depleted resources, a degraded environment, and a declining quality of life. They attribute this to an exclusive preoccupation with economic growth without a broader concern for its ecological consequences. They forsee a future in which the quality of life continues to decline unless economic development policies are less centered on growth and more concerned with the preservation of the environment, the conservation of resources, and the maintenance of quality of life and ecological balance.

The group may also include ecologists, environmentalists, and resource analysts, although natural scientists more often furnish the base arguments for the forecasts of alternate futurists. Included among the counter-economists would be Boulding (1971). The social commentator Henderson (1975) envisions an alternative future. The model builders and forecasters, Forrester (1971) and Meadows (1976), analyze limited growth. The arguments of economists who are skeptical of the older models of growth and development — Schumacher (1973) for example — may be used as a basis for the critique and alternative vision. The work of environmentalists like Murdoch (1971) may also provide a basis for the critique by the alternate futurists. Our interest is not so much centered on the methods of the alternate futurists, as it is in their frameworks for structuring the analysis of broad social and physical forces, and for identifying the variables that move within these structures to shape future events and plan outcomes.

The methodologies of the futurists are covered in Volume II. It is not

the complexity, elegance, or plausibility of the theory and methods of futurists that merit study, but the richness of their insights and intuitions, the creativity of their story line and the attractiveness of their futures values when translated into present-value terms.

Futurists do not live by their methods, nor die by their predictions, as these are realized or unrealized through the passage of time. The worth of the futurists lies in the richness of their insights and the attractiveness of their values as these mirror present, not future, concerns and values. The alternate futurists offer a perspective for the future and a framework for planning. As with all future perspectives and planning approaches, the alternate vision of the future is grounded in a set of present values, embodied in a specific set of attitudes and coded into an ideology, which here is defined as a schema for interpreting life. The movement even has a distinctive life-style and morality, but our interest as planners is on the alternate future vision as a framework for planning education.

1.1.0 *The Planner's Problem in Studying the Future*

The employed planner, who must labor in an imperfect organization confronting the problems of a hectic world, will face a number of practical difficulties that intrude on his study of the future. Planner-analysts deal with the future in a present context of pressure for solution of problems which afflict policy and decision makers. The pressures of current events absorb time, distract the analyst, and distort his perspective; *but most importantly the pressures of the day force the planner to be concerned with implementation.* Something must be done, even if it is no more than preparing a rationalization of why nothing can be done for the moment. In trying to help decision makers to do something, the planner must cope with individual behavior and the dynamics of organizations and social groups; and in this maelstrom, issues arise that are only moderately amenable to rational methods. The problems of planning and implementation in a real-world and real-time context are dealt with by specialists in the analysis of organizational behavior. The next two chapters by McGinn and Warwick discuss these issues. The daily pressures do make it difficult for the planner to climb out of his present rut to search the sky for signs But the same pressure helps root the search in reality. Pressure is the live part of the planner's job

1.1.1 *Imperfect Systems Structures and Sub-Optimization*

Pressure and imperfect knowledge may also limit planning analysis to dealing with only a sub-set of the issues and variables that characterize the problems. In some cases the planner cannot identify the full set of variables, or measure their values, or establish the range of their values; in other cases, the planner may identify the variables

but be unable to control or influence them; and in the worst case, the planner may be unable to develop a framework for identifying and structuring variables which seem to be important and related. In these situations planning at best becomes an exercise in sub-optimization, where some goals may be attained, while other equally important goals are not addressed. Or the likelihood of attaining one goal may actually be diminished by the pursuit of another.

Sub-optimization is easy to criticize and deserves the criticism Henderson and the counter-economists (1978) muster against it, but behind the brilliance of the critique there still is only rudimentary development of an optional framework and perspective for rising above sub-optimization in situations where the goals of social groups are dimly perceived as conflicting. Whether the game is ultimately zero-sum does not matter so much as whether or not it is perceived as such by players in the short run. No person sits still for the unfolding of the future when the planner cannot demonstrate to the person that the future will be better (or worse) for him/her. Alternate futurists can only put up the signs and hope, and when the future signs indicate a growing scarcity of resources and a plundered and degraded earth, as in the limits of growth forecasts (Meadows 1972), then conservation is one possible reaction, but hoarding is another. Invention, innovation, and sacrifice are possibilities, but perhaps not the most likely outcomes.

Assessing the human future within the framework of ecological systems analysis — in Boulding's terms (1971) assessing the "goods and the bads," the "services and disservices" for everyone, everywhere and for all times — requires less emphasis on criticism and catch words, and more elaboration and application of analysis to social reality. The environmentalist message must be internalized by the massed poor who have not yet had the opportunity to get their licks in against the ecosystem. The alternate futurists, if their message is to be heeded and practically addressed, may have to deal more straightforwardly with individual and societal obtuseness and perversity, when they are much more comfortable in a utopia of participation and permissiveness. At best the world would have to be more as Mannheim (1949) envisaged it, where the views of the intellectual elite are made to matter through social guidance, and at worst there will have to be ecological salvation through power and coercion and regulatory enforcement. Liberals among the alternate futurists may hope that the enforcement apparatus will wither away, but regulation and enforcement may increase in the beginning.

So far, even the framework for encompassing and organizing ecological knowledge and awareness has not been worked through. To an even less degree is there a model for analyzing, understanding, and mediating competing social views, or methods for planning policy and programmatic responses to ecological problems that affect members

of societies in opposite ways. We will expand on this unsupported assertion later.

The planning methods discussed in the second volume of this series exemplify the problem of sub-optimization when planners must translate the broad goals for social systems into the narrow statements of objective functions. The result is the limited and sometimes purblind allocations frameworks within which development planners work. No sweeping solutions emerge, and limitations in the models and methods invite the criticisms that Boulding (1968) and others have advanced. The alternative visions go beyond mere criticism. Alternative systems and forecasting frameworks are outlined in the work of Duncan (1969) and Forrester (1971), and, like all systems, they have limitations. Just as rational planning may be of limited use in developing a framework for addressing goals in the broadest and most optimal way, alternative approaches may be limited in the depth of their analysis of the dynamics of complex social systems. If sub-optimization is the better-than-nothing alternative for developing a comprehensive framework and goal statement, black-boxing is the response to the difficulty of penetrating and understanding opaque social contexts and phenomena.

1.2 *Black-Box Models in Natural and Social Systems*

Many of the systematic analyses which support the planning of economic systems, and the planning of ecosystems as well, are limited to black-box portrayals of the sociopsychological dynamics that underlie the process being modeled. This is true for the portrayal of the dynamics of a national economy modeled in the aggregate, the analysis of population dynamics, and the forecast of population growth. In educational planning it appears even more clearly in the forecasting of enrollment flows and systems throughput, and in education production function analysis, in which the central process of an education system, the myriad acts and reactions in teaching-learning, are summarized by a few numbers or analyzed as an input-output process with the limited models of regression and least-squares.

The observation, much favored by Henderson (1978), that a system cannot be managed if it cannot be modeled is attractive in a wistful way, but may be impossible of fullfillment, because no social system and few physical ones can be satisfactorily modeled; and yet within limits they must be managed. A central concern of analysts of both social and natural systems is population dynamics, but modeling the simplest dynamics of human population change is far from adequate. The population projections of the U. S. Bureau of Census are just that, projections. They are not forecasts, or even predictions, simply because many variables which affect population growth cannot even be identified, much less analyzed and predicted.

The United States census projections depend on sets of assumptions

about changes in the major components of mortality, fertility, and migration, without any precise attempt to model the variables which affect these components. Apropos of the analysis of ecosystems, Murdoch (1971) discusses the modeling of less complex and more easily observed populations: "The great proportion of the problems we face in managing ecosystems are population problems . . . The famous cyclic populations of small mammals have been studied for 40 years, and still there are several theories competing to explain the data." Discussing the population dynamics of the spruce budworm (caterpillar), Murdoch states, "After 15 years of study the major causes of mortality have been found for most of the life stages in the insect, but after this enormous effort, it is still not known what normally limits their numbers . . ."

If those who work in the analysis of ecosystems are this modest about the limitations of their work, it behooves analysts and planners when structuring the analysis of human social systems to be wary of expecting ecology to afford a new framework for social planning. Murdoch states, "In the case of real ecological systems one does not try to describe every interaction and the relationships among all the variables . . . Indeed, the art, as in any science, is to draw a caricature of the system, etching in the really crucial lines . . ." This may have a familiar ring and resonance for social analysts.

It may be comforting to analysts and planners who deal with human social systems that their colleagues engaged in analyzing physical and natural systems are forced into the same black-box approaches when dealing with the reality of their world

The planner-analyst does the best he can when attempting to deal with the human social systems he must deal with, and there is no methodological salvation offered by ecological systems analysis. This should not suggest that those who criticize development economists and planners for being insensitive to ecological perspectives and frameworks are not correct in their concerns.

In this chapter we will examine some of the broad forces that planners must track into an unknowable and intractable future, and many of these economic, social, and educational currents are bound into, or bounded by, physical and ecological variables and systems. The social planner must be aware of the potential future effects of energy and mineral resources, the effects of climate, the potential limits of food supply from land and water resources, and the limits of fresh water itself. Population growth and environmental degradation will affect economic growth and the quality of life, and, in turn, the quality of life will have effects on population dynamics and social and cultural development. It will be no easier for the planner to analyze relevant physical variables within an ecological framework than it is to deal with the limited economic and social variables that planners have traditionally attempted to analyze. Modeling the internal dynamics of complex natural systems is not markedly simpler than modeling

social systems. The analyst will still make do with general variables, incomplete specification, systems caricature, and black-box analysis

1.3.0 *Knowing About the Future Versus Dealing With it*

If it is difficult to foresee the future, it is even more difficult to do anything about it; and yet presumably this is the purpose of planning when applied to tracing forces, events, and future consequences. The planner must deal with the future on the basis of present and past data and a set of methodologies that are limited when used for projecting, forecasting, or predicting the future. Even when planners are sufficiently skilled or lucky enough to glimpse something of the future, they are faulted because their plans, and the policies and programs they engender, cannot actually do much about the future.

Both critics and supporters may have expected more of rational planning than the approach could deliver. The warranty for this assertion will be advanced in this chapter, which examines the extent to which planners are able to analyze the interplay of important natural and man-made forces, to trace out their consequences in terms of social, economic and political trends, to incorporate this analysis into forecasts of probable future states of social systems, and to develop plans, policies, and programs that are relevant to these future states.

1.3.1 *Planning and Doing*

At the outset it will be stated that even the most accurate analysis and forecast may not lead to plans, policies, and programs that do anything about the future conditions traced

In the process of planning, the foresight that informs plans, policies, and programs operates in three different modes according to context The expectations of the outcome of planning should be scaled accordingly. First, there are the prudence and foresight that support planning in the managerial context, when the domain is small, the time horizon short, and the control of assets, in the form of both material resources and social support, is strong Here there may be a reasonable expectation that analysis and planning can influence future events in the short term

Secondly, there is the foresight that is guided by analysis of a process embedded in a complex social surrounding In this context not only is the control of assets weak, but also the process under study may only be caricatured through limited models and black box analysis Hence, foresight may not hold true over any extensive domain of different circumstances or over any period of time; and the influence of policies on future events will be correspondingly weak.

Lastly, there is foresight based on the study of broad forces operating in a complex context, with consequences likely to influence events over a long-time horizon. The planner's purpose may be no

more than to trace these forces in lineament. Analysis in this context may indeed increase present knowledge, but this knowledge may not be translated into policy and program instruments that will affect future events.

When it comes to tracking broad forces and their probable effects, it is hard to analyze all the forces that impinge. The major ones may be difficult to identify or analyze in order to array the anticipated concatention of events in the form of a prediction. It may be even more difficult to do anything to affect the outcome, even if it can be glimpsed. Most major social variables, which are driven by many individual choices, are not under control in the present, much less in the future. If present preferences cannot be added and expressed to the satisfaction of all, then choices projected into a future in which the chooser cannot even know his own status, will be even less easily summed and expressed in a tractable objective function. *The objective function is a statement which relates goals, or objectives, to outcome levels as these are assessed by predetermined criteria and criteria levels.* The objective function shows the extent to which we accomplish what we set out to accomplish within the system as we define and model it. Yet, though it may be impossible to know the future, and useless to try to control it, generally it is considered prudent to give thought to the future; and some ways of thinking about the future are more productive than others. At issue is whether it is productive to think about the future, whether or not anything can be done about changing it

1.4.0 *Assessing the Quality of Thought about the Future*

The planning literature, both the segment which deals with the near future and the segment which deals with the broader field of futurology, provides little guidance for developing criteria to evaluate the quality of thought about the future In conventional appraisals the position seems to be that thought about the future has demonstrated its worth, or its uselessness, when things come out, or fail to come out as foretold. This seems a limited standard by which to judge matters It would seem that the value of thought about the future is best demonstrated by its relevance to both the present and the future In terms of the present, thought about the future is productive when

- It clarifies thinking about present problems,
- It encourages confronting present problems
- It aids in resolving present problems

If thought about the future contributed only this much, it would pay its way, but it is also common to assess the productivity of "futures thought" in the light of future events

—Good and bad future events come out as foretold, without interven-

tion, i.e. the forecast is fulfilled for better or worse. The forecast is accurate.

—Bad events are avoided because of intervention prompted by thought about the future. The forecast is effective.

—Good events are brought about because of intervention prompted by thought about the future. The forecast is constructive.

In tracing broad forces and their probable future consequences, it is rarely possible to prove the effectiveness and constructiveness of thought about the future, although it is possible to assess accuracy.

1.4.1 *The Usefullness of the Alternative Vision of the Future*

Alternate futures of reduced waste, through cutting away unnecessary consumption and husbanding diminishing resources, enhanced quality of life, through closer attention to ecological balance and environmental quality, and economic development, founded on self-actualizing models of production and equitable distribution, have all been conceptualized by Boulding (1968) and Schumacher (1973), and expounded and diffused by Henderson (1978). By the criteria proposed above, the work of the alternate futurists may be useful, whether or not future depletion of resources and degradation of the environment and reduced quality of life come to pass, or are avoided by changed policy and timely intervention. The preaching of the message is serving to clarify thinking about present problems; it is stimulating policy makers to confront these problems, and in a certain measure to resolve them; and, if not, at least to ameliorate or defer their consequences.

In the future, and especially in the near future for which the planner plans, some good and bad things he foresees will come to pass as he foresees them, and without policy intervention. Thus, his present thought on the future will prove accurate. Some of the bad outcomes will be avoided, and some of the good alternatives will be attained because of policy intervention, and thus thought about the future will turn out to be effective and constructive. The more probable consequence is a mixed result, rather than a perfect record; but even if there is no avoidance of bad or attainment of good, the future thought may serve to improve the present.

In the best of worlds the futures forecast would serve to alert constituencies and policy makers to take action to avoid future harmful consequences. The futurist and planner have served nonetheless when they have accurately charted broad currents of the future, even if no decisions and actions are based on the forecasts. Long before the views of the ecologists and alternate futures groups came into prominence, some energy specialists and some policy planners were asserting that petroleum resources were being depleted and future shortages would occur. Special studies, including one by a special presidential commis-

sion, predicted the United States energy crisis of the 1970's, twenty-five years before it happened, but no policies were developed or programs implemented until an emergency shortage forced Americans finally to realize that petroleum was a finite resource. Though the many forecasts of resource depletion did not prevent waste and promote conservation policies, the projections, and the continuing studies and reports of United States Geological Survey bulletins, were useful as a prevision of future problems. The studies provided a base for later policy analysis. *The point is that planning and forecasting serve a purpose whether or not policies and programs are developed to respond to the future states that are traced out.*

2.1 *Systems Frameworks for Analyzing the Future and Planning*

To analyze the broad forces that will shape the future, the planner requires:

- a systems structure or context to guide analysis;
- a means for identifying and assessing the status and change in major variables within the analytic framework;
- a set of methods for analyzing the variables and portraying the changes in them over time;
- and a policy context to shape inferences from analysis.

Clearly the planner works within a framework of his own individual and culturally determined knowledge, skills, attitudes, and values. These values not only orient the policy choices, they also guide selection of a systems structure in addition to identification and characterization of specific variables. Arguments about culture-free, value-neutral, or objective frameworks or paradigms for analyzing social, or even physical systems, are made of straw, for even the choice of the basic analytic framework is value-founded and subjective. Much less are variables selected and characterized objectively; and to claim objectivity in the formulation of policy conclusions drawn from social analysis is preposterous. An argument might be made as to whether one framework and analysis mode is more objective than another but it cannot be resolved or even reasonably argued except within one or another framework of values.

2.2 *Natural or Ecological Systems Framework*

Natural or ecological systems models provide one framework for structuring analysis of the broad natural forces which will shape the future. The ecological framework with its tang of naturalness may suggest that it is the most basic and objective framework for analyzing social as well as natural systems; but it is neither more objective nor more basic than any other, as the arguments over environmentalist

issues reveal. Still, the argument for structuring analysis within the broadest natural or ecological framework is persuasive, for if the environment is degraded, resources depleted, and food and energy wasted away, all man's social works and ways will come to naught.

As a framework for analyzing the future of mankind, even the ecological model is not wholly sufficient. First, there is no framework for tracing ecological consequences comprehensively; secondly, there is no framework for tracing consequences in depth. The masked model and black box are just as ubiquitous in the analysis of natural systems. Environmental exploitation and its consequences influence, and are influenced by, the political, cultural, and economic thoughts and deeds of human social behavior. These influences must be analyzed in detailed fashion within other systems frameworks and with other paradigms. Still, the ecological framework may provide the outer structure within which social systems are analyzed.

As Murdoch (1971) has explained, there is no serviceable model that spans the major ecological systems of the earth, or even a model that delineates in any complete way the ecology of limited field environments, or the dynamics of natural populations. When ecologists, environmentalists, and counter-economists advocate an ecological framework for analysis, they are not suggesting that a full-fledged model is available for the analysis, but merely that an ecological framework provides guidance for avoiding the restricted views imposed by economic or political systems frameworks. The tracing of future consequences must be broadened from the limited perspectives provided within economic and political frameworks in order to include wider effects in the surrounding environment. The ecological systems context provides this framework, but it does not provide an all-purpose method for probing inside all economic, cultural, and political systems problems, or for tracing their consequences into the future.

2.3 *Social Systems Frameworks*

Economics does provide a framework or systems structure for tracing broad consequences of interest to planners. Despite criticisms of is limitations, the paradigms of neoclassical economics enable the analyst and planner to deal with an important class of societal variables Decisions reached within a framework of economic systems analysis, as Henderson (1978) claims, may be sub-optimal, but the same limitation may be true of perspectives supplied by any framework. The environmental consequences of economic development may be identically destructive and wasteful whether worked out under neoclassical economics and private profit structures or under Marxist theory and state structures. An ecological framework might treat the two as indistinguishable, but a political economic framework would distinguish between the two.

Planners working within the framework of either one of the two

economic systems must still deal with differences that are meaningful to the policy and decision-makers served by the analysis. Under one system a market of buyers and sellers is assumed as fundamental, while participants, who can, do their best to destroy its untrammeled operation in the future; under the other system, a cooperative of producers and consumers is assumed to be fundamental, and participants with privileges do their best to escape it. The way in which these conflicts are worked out differently in the respective systems is of considerable interest and importance for planners attempting to track the future of their political and economic systems. Analysts with a broad ecological perspective may find the political and economic differences of minor significance, but analysts within the different systems must deal with the future using appropriately different social models of the economic and political systems.

2.4 *Political Systems Frameworks*

Political systems frameworks provide planners with a basis and a structure for tracing the future dynamics of power, control, and compliance. In this paper we will not dwell on political forces and structures as they are manifested in the organization of government bureaucracies and administrative machinery. Centralized and bureaucratic control and administration, as contrasted with decentralized administration and local participation, influence the substantive and formal character of planning and future thought. The transactional context in which plans are formulated and implemented and the different systems and administrative structures will condition the way analysts and planners work out the future. Our interest here, however, is in the analysis of broad social currents and political forces that influence the future.

Again from the ecological perspective, particular configurations of power and control may be of little significance if the future brings a world of environmental chaos; but the ecological future will be shaped by differences in political forces and dynamics. Depleted resources and environmental degradation are the consequence of greed and power operating in a context of social and political ignorance or indifference, and only through the exercise of countervailing power and control will this be resolved. Etzioni (1968) defines power as the capacity to overcome resistance, to introduce changes in the face of opposition, and to draw on and energize assets. In few systems is power absolute and coercive, nor is control complete. Hence, the effective exercise of control depends on the social structuring of compliance. In Etzioni's scheme, power applied in the system may be coercive when it attempts to gain compliance through force of sanctions; remunerative when it attempts to secure compliance through material rewards; or normative, when it aims to evoke moral compliance through the symbols of esteem.

Different forms of power evoke different forms of involvement, commitment, and compliance, but to attain any set of ecological or economic goals will require organizing political forces for the broadest form of social action. Depleted resources or degraded environments result from the sum total of individual and group values and actions, and only organized political efforts to change values and actions can reverse the damage. The alternate futurists prefer that this be accomplished by promoting the internalization of changed attitudes in millions of individuals, through education and information circulated through participant networks. They prefer the exercise of normative power leading to compliance through moral involvement. However, if the pressure for changing the course of the world is as exigent as portrayed, and the state of ignorance, outside of a few islands of affluence, as vast as it seems, time may run out on the preferred alternative, and the future may require direct application of coercive power and control. The alternate futurist may be forced to choose whether the social or the natural environment is to be polluted.

The author once observed a young man trying to promote change, through education and tribal cooperation, in the environmentally harmful slash-and-burn agriculture practiced by mountain tribesmen in Southeast Asia. An alternative approach to the same policy was also enforced by punishment at gunpoint meted out by area police. Assessment of the results of the two approaches did not wholly support the view that Etzioni's alternative of normative power, and moral involvement will be the way of the future. Coercion sometimes changes practices, when moral persuasion does not.

The value preference of those who advocate an alternative future of ecological harmony and environmental quality is for normative power evoking a moral response through participation, shared concern, and internalization of political and economic goals that do not harm the environment. This is only one possible power/compliance configuration. Whatever the form of power exercised or compliance attained, the planner must deal with political systems and the key variables that operate within them. Ecological harmony may have to be attained through the exercise of coercive power. The planner cannot assume that harmony will come through the exercise of normative power and social participation.

Murdoch (1971) speaks to the point of ecological harmony and social disharmony. He points out that it is the sum of individual decisions which leads to unchecked economic growth, and the consequences of this which degrade the environment He states, "The problem is quite simple: Whatever the collective good may require, it is almost always to the individual's benefit to increase his personal wealth." It is also this avid individual who in the natural order of things increases and multiplies his kind. Apropos of "genetic altruism" he states, "Thus natural selection, by definition, ensures that those genotypes survive

and increase that produce more reproductive offspring than do competing genotypes." (Murdoch 1971 p. 427).

The ecologist's case-of-cases on man's exploitative potential is Hardin's (1968) "tragedy of the commons." Each shepherd added sheep to graze on the common land, because it was in his short-term interest to add to marginal over-grazing, even if in the long run the common resource was destroyed. Future problems which may require resolution through power and even coercion are not all founded on lack of knowledge, as in the tribal slash and burn example, or on individual profit motives, as in the "common's" case. Very often two highly valued rights and goods clash. An example is the development of solar energy in the Northeast, which was reported (Boston Globe 12 July 1975) to be slowed by unrealistic warranty standards imposed on equipment makers in a new field to protect consumers. Subsidies to encourage homeowners to invest in solar energy actually encouraged them to wait for more subsidies. The environmental good, solar energy, clashed with the social good, consumer protection. The good does not simply clash with the bad; the good conflicts with the good. In the future these conflicts may become even more tortured than the present ones that environmentalists have learned to handle: environmental protection versus jobs for workers, cheaper power, or economic growth.

Ecological damage, vastly increased in potential danger for all, because of more effectively destructive technology, must be approached by the planner as a future problem which can perhaps most clearly be appreciated from an ecological perspective. The framework of the ecologists provides a basis for analysis. On the other hand, there are social, political, and economic dimensions of the problem best analyzed by the models and methods appropriate to these fields. The structure for analyzing the problem and synthesizing a solution through policies and programs is not provided by ecology. Resolution, if it is to be effected, must come through social systems analysis, and economic, political, and social policies and programs. There is a question as to whether the alternate futures forecasters are shying away from possible — some might think likely — political alternatives, preservation of the environment and its resources through social control and, where necessary, implemented through political coercion. This is by no means an unlikely response if the survival of large groups, or even the species, is perceived as endangered in the future.

One shudders to think what political powers could, or would do, in the name of world survival, when so much destruction has been wrought in the name of mere national survival. There was a trace of power and coercion, the domestic big stick, to the efforts of one of America's more effective conservationists, Theodore Roosevelt, and this in the days when the issue was more one of aesthetics and recreation than survival.

A future in which the issue is the survival of the human species is not

often raised even by the most fervid ecologists. Wheeler accuses some ecologists and environmentalists and alternate future advocates of proposing mere tinkering when the issue is much more serious. He states, "But it is time, past time, that we looked up to confront full-face the long-term prospects of our survival as a species . . . Our survival is by no means assured . . ." (Wheeler 1978:32).

Charles Sanders Peirce (1923) examined the alternative of individual immortality long ago, and after finding it unappetizing, concluded — and it is possible to read a sense of relief into his final words — "In place of this we have death." This may also be an alternative for mankind, though few planners or futurists have been bold enough to face it. Their faith is still rooted in social controls of a more benign form. Mannheim (1949) advocates this form of societal control through planning. His words have relevance to a future where the natural environment must be preserved without destroying the political and social systems many of us now value.

2.5 *Social Systems Frameworks: Mannheim's Conception*

For Mannheim (1949), planning requires the analysis of the conflicts between competing social forces. The conflicts arise from different values which create opposing goals and social perspectives. His theories could apply to a potential conflict between goals for the natural systems and goals for social systems, although in Mannheim's hour the world seemed more likely to perish by catastrophe in the social and political system than through decline in the natural environment. Mannheim viewed planning as future-oriented: planning was for him foresight deliberately applied to human affairs, so that the social process was no longer the chance product of conflict and competition. Mannheim did not quibble about the limitations of rational thought as applied to human social affairs through planning. Planned thought was the highest stage of rational development, and for him rationality was concerned with synthesis as an end beyond analysis. The planner searched through factors to arrive at regularities and formulate them as principles. Mannheim did not charge planning with the responsiblity of guaranteeing success in controlling whatever future might be foreseen. There was, for him, no option to planning; it was an inescapable task. Planning analysis had to deal with reality and its interdependent problems. It was not purely a theoretical exercise, but was concerned with influencing social control, even when that implied the existence of power, control, and coercion in social and political systems. The moral objective of planning was to preserve and enhance freedom, subject to democratic control.

Mannheim, more clearly than others, perceived the importance for planning to attempt to identify the broad forces that shaped present and future social systems. The prime task was to describe these forces, called Principia Media, after terminology in Mill's *System of*

Logic. The Principia Media were the regularities sought in the rational exercise of planning. They were interconnections that defined the particular character of a social pattern; they were universal forces in a concrete setting, the basis for viewing present reality; but because they were regularly recurring special laws they could be used for tracking the future. Planning was a predictive strategy which attempted to bring under control the as yet uncoordinated Principia Media of the social process. The quest for the planner was the discovery of these Principia Media, which in combination were the forces which dominated a social epoch. The task was not to discover them post-mortem through history, which assumed that what happened was the most important or only possible play of forces that could have happened. Inquiry into the current play of social forces was required.

For Mannehim the planner's task was to investigate and identify Principia Media as they emerged, in *statu nascendi*, and to describe them as multiple possibilities, not as single predictions. He faulted futurists, as he faulted historians, because in the "prophetic error," futurists described what will happen from a welter of possibilities, selecting according to their own wishes. Planning for Mannheim was social vigilance, an attutude of watching over the factors at work in a society in order to detect new possibilities which were coming to the surface at the proper moment. The purpose of monitoring society, of the ceaseless inquiry and research into social dynamics, was to reinforce those possibilities which had been identified at those points where vital decisions must be made. The planner sought knowledge of broad forces in order to shape decisions and social action. His task was not "establishing" social institutions, which Mannheim equated with "colonizing"; nor was the planner's work mere administration. "Administering" came after the Principia Media had emerged and the forces had been charted, brought under control, and stabilized.

Mannheim described the process of inquiry into the Principia Media as proceeding through exact description, comparison, causal explanation, the search for regularities, and the formalization of principles. He gave examples of planning for key social objectives: full employment, social security, economic and educational opportunity, world order, and peace. Yet for Mannheim the centerpiece and safeguard of all social development was the formation of the "democratic personality." The purpose of planning was always freedom. Freedom was to be insured through the constitution of "the democratic personality." This was to be accomplished through education broadly conceived.

Through education and communication the society was informed and guided, and intellectual elites, the personalities of high social disinterest, emerged to identify the Principia Media to guide social planning. Perhaps Mannheim in his day was foreseeing elites of the alternate futures and ecology groups who have identified the Principia Media of this era as the conflict between the finite resources of the earth and the profligacy of man's use of these resources. From this

conflict a host of physical, economic, political, and social consequences will follow in the future. Mannheim would recognize the legitimacy of elites identifying and communicating their Principia Media, but he would be less likely to understand the discomfort some of these elites express about their own elite status. This may be yet another Principia Media — the emergence of a social conscience so tortured and refined that it shrinks from contemplation of undemocratic means for social preservation. Mannheim might have understood this dilemma. He struggled to accommodate his idea of the necessity of planning and social guidance with his idea of the primacy of unlimited freedom.

Mannheim never gives clear examples of Principia Media for his time and place. One might infer that they included: the conflict between the mobilized powers of totalitarian systems and the latent power of democratic states; the intrusive and expansive outreach of technology; urbanization, and social complexity; the aging of industrialization; the power of mass communication over public opinion; the rise of mass education; the breakdown of moral and religious authority; and the loss of philosophical coherence.

The concerns of the environmentalist, ecologist, and alternate futurists would not have been central for Mannheim. Concerns about environmental degradation, ecological damage resulting from population growth, technology and resource depletion, did not appear as Principia Media for him. But his basic concept of Principia Media, and his objective of harmonizing social guidance and freedom, would have provided a framework for addressing such problems.

Ecological, economic, political, and social perspectives provide the futurist and planner with a variety of systematic frameworks for analyzing the broad forces, or Principia Media, that will affect the future. Within these frameworks analysts can identify the key variables that indicate the emerging Principia Media that presage the future. We will examine some of these key variables

3.0 *Population as a Central Variable of all Future Systems*

Population variables and their dynamics provide a basic focus for studying the future of natural and social systems alike. Though energy flow and the cycling of material may be the central variables of natural ecological systems, the focus of most systems study is on how populations interact with the materials that are synthesized out of energy to create at various trophic levels the food webs that sustain and limit populations. Most central of all populations is the human population with its power to influence all other populations in all ecosystems. Murdoch defines a population as "a group of organisms belonging to the same species and living in the same area so that there is a possibility of interaction among its members" (Murdoch 1971:9).

The dynamics of all populations are determined by birth, death, and

movement or migration. These are the components which are analyzed in the forecasting of the future populations in natural or social systems. Given the structure, or age distribution, of the population and knowledge of the dynamic components, the future numbers and distribution of the population can be estimated. In even the most seemingly simple populations, however, the factors that influence population components are not clearly modeled, nor are all variables indentified and charted. This holds as surely for estimating insect populations as it does for humans. The problem of managing ecosystems is linked to the problem of charting and managing populations. There are limits to the increase in all populations, and these are imposed by food and space, which impose cycles of rapid growth followed by the leveling-off of growth, and then decline.

3.1.0 *The Future Population and the Variables of Natural Systems*

In the ecological systems model, the population is a central variable. Analysts study the size, structure, and change in animal or plant populations in man's managed ecosystem. The size of future human populations can depend directly on changes in the animal or plant populations. Though the size and structure of future human populations are of interest in and of themselves, the planner is more often interested in the future population in relation to other variables that can impose limits on the size and quality of life of the population.

3.1.1 *Population and Living Space*

Few planners are yet concerned with the future absolute balance of population size and living space. The limit of space itself is not a direct future issue. In world perspective the earth is not physically crowded by the present population or likely future populations. The density of the population, the number per unit of area, may be of concern to those few nations where land mass is small and population large and growing. It may be of even greater concern in areas within the nation where the population is most densely settled; but even in Calcutta, basic physical space suffices. The urban planner, who must deal directly with population and space, is more concerned about the qualitative effects of the population/space balance. Crowding is made more serious by pollution influenced by problems of disposal of household, vehicular, and industrial wastes. More serious still are the social pathologies that can be exacerbated by crowded and polluted space and the attendant poverty almost inevitably part of such areas. The urban planner, or local planner, does forecast population densities, the effects of these densities on pollution and the physical quality of life, and the social pathologies the local environment engenders. Still, even in the poorest urban areas, planners are not yet contemplating a future in which there will be no living space for populations.

Population distribution in spatial terms is a concern of spatial planners working on regional and urban development, but their major concern is with basic needs assessment and provision of services. Absolute lack of space is rarely a problem. This is true also in the branch of educational planning called *school mapping* (Volume II, Chapter 16)

Even though national, regional, and urban planners are not yet dealing with a future in which space is insufficient for population, forecasts and plans may be shaped differently in countries where ratios of population to space, or land area, differ. There will be obvious differences in land settlement and colonization plans, and in plans for agricultural development, depending on the ratio of population to arable, grazing or forested land There may also be differences in human resource development plans through education and training, and in the delivery of school services. The planning of education reform in El Salvador was shaped by population density and land scarcity and the objective of producing a highly trained and disciplined work force capable of intensive utilization of resources on the model of Japan Paraguay, where land is plentiful and population scarce, has until recently made less intensive efforts in education and training.

Planners must reckon with the population-to-land ratio as an indicator of future problems Currently, the ratio is of concern in a few countries of high population density and in the overcrowded urban areas of many countries High population densities also affect planning in some rural areas in India, Bangladesh, and Java In most situations it is the population ratio to land as a food producing resource, rather than land for living space, that indicates future problems.

3.2 *Population and Food from Land and Water Resources*

Population in ratio to land as a potential source of food is a central variable in plans and forecasts Most countries survey and inventory the extent and quality of their crop land, pasture land, and forest resources, plan the use and productivity of the land, and forecast the future production, processing and marketing of the food and fiber yields. In the future, the land will not change in quantity, but it can change in quality and productivity. Requirements for the output of land will change over time, as population increases and per capita consumption rises Hence, the amount and kind of land and its output in ratio to the size and consumption patterns of the population is a central force in shaping plans and forecasts The variables can be analyzed and tracked, using several systems frameworks for planning.

First, there is a narrow ecological framework Analysis centers on how the synthesis of plant food by solar energy is influenced by technological intervention in the transformation and cycling of materials Plant and animal species are genetically modified to increase yields; nutrients and water are applied to increase yields; and

disease and pests are controlled. Within this framework the planner projects yield according to a limited number of variables identified as relevant to the managed portion of the ecosystem. This narrow ecological or technological framework is closely related to an economic framework for the system. The system is analyzed mainly according to technological intervention and effects, or by economic analysis of inputs and outputs, costs and returns. This limited framework and perspective is common in rational planning.

Ecologists and alternate futurists are warning planners who work within present technological and economic frameworks to adopt a broader ecological framework for their analysis of present and future consequences. The broader ecological framework is required because ecosystems, even managed ones, are open, and all future effects cannot be assessed within the narrower framework.

The genetic modifications may lead to plant population simplicity and increased vulnerability to castastrophe; the application of nutrients and pesticides may affect surrounding area ecosystems adversely. The technology may require use of scarce fossil fuel resources to produce nutrients and to power machines. Pollution from pesticides and machines may adversely affect other areas. The soil may be depleted in the long run through overworking or through increased salinity in water application. Water resources, rivers, lakes and the sea itself may be polluted by run-offs from pesticides and industrial wastes; and food chains affected.

The point here is not to offer a rudimentary cataloguing of environmental dangers of damaging the ecosystems, and thereby destroying future product; of degrading the environment and the quality of life; and of exhausting scarce resources. The challenge is to plan limits on future production within an ecological framework and at the same time satisfy population/food requirements The broader ecological framework suggests a future of slow growth and scarcity that is very different from that yielded in narrower technological and economic analysis. The alternate future of limited prospects will have social and political consequences as well as physical effects The environmentalist's criticism of the narrow technological and economic viewpoint of growth planners may be well taken. But there is no framework or model for linking natural systems to man-made social and economic systems for purposes of comprehensive planning.

3.3 *Mineral and Energy Resources and Future Prospects*

The stock, use-rates, and depletion schedules for mineral and energy resources within a national boundary are dealt with by analysts with special competence in the field, and the general planner incorporates their assessments into the appropriate sections of his forecasts and plans. The focus of interest may be production targets for mineral and petroleum resources, the availability and price of the resources

related to the technologies and production targets of the national economy, and the export market demand and price structure. The human resource planner may also be required to estimate employment and education and training requirements in the mines and petroleum sectors, and to trace the effects of production in these sectors on manpower requirements in related sectors.

Planners may have to go beyond forecasts of supply and demand of mineral and energy resources for conventional short and midterm development plans to trace the broader effects of the future world shortages of mineral and energy resources. World supplies of the principal minerals and conventional energy sources, use-rates and depletion schedules have been charted for some time Diminished stocks of key minerals have long ago been forecast by Cloud (1969) and Park (1968) and foreshadowed in early surveys by Lovering (1943). The same is true of petroleum as a prime energy source. Forecasts of possible scarcities go back more than two decades and appear regularly in government publications (*The Minerals Year Book* 1965) and in special commission and study reports (Hubbert 1962).

For the planner, the future issue is rather one of analyzing and forecasting what the technological and economic consequences of almost certain depletion of key minerals and petroleum will be. Schumacher (1973) has presented technological alternatives; Boulding has discussed economic alternatives, and Daniels (1964), White (1965), and Glasstone (1967) discuss alternative energy sources from solar energy, geothermal energy, tidal power, and nuclear power. Nuclear power is a typical case of a risky good The limits on expansion of hydroelectric power capacity and the costs, direct and indirect, and the costs of greater use of coal, and exploitation of oil shales, have been estimated Here there are no options to facing the limits within a natural systems framework, and for the planner, the future issues are confined to projecting almost certain decline in production, the economic consequences of decline, the development of alternative technologies, and the environmental and social consequences which will follow

3.4 *The Future Costs of a Degraded Environment and Declining Quality of Life*

In a world already plagued by resource scarcity and pollution, the futurist need not resort to dark prophecies of events that lie ahead; he can point to the immediate, though not worldwide, examples of the evil. The problem is not in the future, there are already depleted mineral and petroleum resources This is a present danger which has already passed into the world of policy and program response in more complex countries and economies

In countries where the effects of environmental insult and pollution are not so apparent, either because population densities are low or the

industrial development level is modest, the planner can use the present state of pollution and environmental degradation in advanced countries as an undesirable model; but it is doubtful if it is the blemishes of richer countries that hold the attention of poor ones. In the poorer and less densely populated countries of the world, not only are policies and programs for avoiding environmental degradation not in place, but attitudes of environmental concern have yet to be shaped except among elite minorities. Here the planner does have the task of applying ecological models to frame economic forecasts and plans. If personal experience is a guide, the receptivity is not yet high. Some government officials accept the reality of the danger and the future warnings it implies for their situation, but feel that alleviation of immediate poverty, satisfaction of basic needs, and the development of more productive — only in the short term — agricultural and industrial enterprises is of more immediate concern. Environmental concern is perceived as a preoccupation of the rich, though pollution and deterioration affect poor and rich alike.

Even in areas where the effects of environmental pollution are as oppressive as in any developed country, as in Calcutta and Karachi, for example, there is only concern. Sometimes there is a policy response; somewhat less frequently there is program and institutional actions but rarely any implementation. This is understandable in the setting of Calcutta where the plan norms for bustee (slum) environmental sanitation and improvement provided one sanitary latrine for every 35 people; one potable water point for ever 65; one bathhouse for every 120; concrete-lined but open sewers, paved spots at the intersection of major lanes and an occasional street light. The need expressed by people of the bustees was for a job, preferably in a stable industry and irrespective of its contribution to general pollution. The ecological framework may serve to identify and raise serious, even fatal, problems which will affect the future, but the resolution of the problem for human populations can only come through social policies and educational programs; and the development of these policies requires analysis of the social, psychological, economic, and political forces that have the power to change the future.

4.1 *Futures Traced from Social Structures and Dynamics*

Population is the basic variable for analyzing the problem of planning and managing natural systems and for forecasting future developments in the system. The size, structure, and dynamics of populations forms the basis for charting the interplay of social forces, and planning responses to future problems. Further, at risk of repeating what might be too obvious to merit mention in the first place, the danger signals that arise in the natural systems are only resolvable through action in social systems. Hence social, political, and economic frameworks for analysis are required to identify the Principia Media

variables of these systems. These variables are basically attributes of the population.

The structural characteristics of age and sex and the dynamic components of mortality, natality, and movement provide the basis for charting future social developments. Central also to the analysis of social dynamics are the cultural characteristics of the population, the ethnic, linguistic, and religious membership, and the acquired status of literacy and educational attainment. Allied are social and political group memberships and the rights of participation in cultural, political, and social activities. The economic characteristics of the population and its groups are reflected in workforce participation rates, employment, and earnings by economic sector and occupation. Related to earnings and income are living standards measured by food, shelter, clothing, and household services The nutritional, physical safety and health status of the population and its subgroups, and the quantity and quality of health, education, and welfare support services provided to the subgroups are also central indicators of social development. The spatial distribution of needs and services by regional or rural-urban status is also relevant. These variables, when characterized and depicted in series, can be used as indicators to compare social conditions across time and space.

4.2 *Social Indicator Schemes*

Comprehensive and detailed systems of economic, social, and political indicators have been developed by Textor (1963), Adelman and Morris (1967), and Bauer (1966). National indicator series are published in the United States and in other countries, and compiled into world volumes by the United Nations and its specialized agencies. Planners and analysts have been furnished with information formats and schemas of systematic indicators for assessing population status and basic needs, monitoring service, and planning future coverage. Assessment of economic distribution and social equity, cultural and political integration, and the status of groups on political and legal rights can be assessed broadly on the basis of indicators, and — more specifically — by analysis of the workings of national economic structures, social institutions, and political and legal processes. Most basic indicator series stay the same over the years; but new indicators are developed and different variables and combinations singled out for attention, as development interests and fashions change, or social diagnosis improves in specificity and coverage

4.3 *Social Systems Frameworks, Indicator Systems, and Social Dynamics*

Social indicators can be used for more than an assessment of the present. The indicator series that specify key social variables, and the

ratios, indices, and norms derived from observing, measuring, and relating the variables, can also be used as a systematic basis for identifying and forecasting the broad play of forces that may shape the future. The epistemological limitations in developing the framework of indicators, the masking of assumptions in choices of variables, and problems of specifying and measuring variables and relating them in analysis, are discussed in the technical and methodological chapters of Volume II, and in the following chapter by McGinn.

Beyond the basic difficulties of dealing with the future in any systematic way, it is difficult to relate the general systems for guiding social analysis (the systems of Mannheim and Etzioni) to the more detailed social indicators of the type discussed. The indicators in turn must be related to the organizational and individual behaviors that shape the present and determine the future. The emerging Principia Media are not easy to discern in relation to the welter of variables and indicators moving in complex social systems. Hence, either the Principia Media are left tantalizingly unspecified, as in Mannheim (1949), or they are boldly schematized, at risk of abstraction and unreality, by Etzioni (1968).

5.1.0 *Assessing Central Currents of the Future*

Even without a comprehensive system that will cover the full complexity of social reality, the planner can draw up his own list of broad currents that run toward the future. In some cases the social analyst can chart the direction and specify the force, flow rate, and volume of these currents; but if there is one sure Principia Media in social diagnosis, it is that some of the major currents not only will not converge, they will impact and conflict. Determining these currents to the extent it can be done is worthwhile for the planner, whether or not he can do anything about controlling them.

5.1.1 *Less for More*

The future as portrayed in the ecological framework provides one central set of themes. The resources of the earth, the energy and materials used by man and his technology, are running down. Man's environment and the quality of physical life are being adversely affected, and the potential for future increase of physical output — *growth* as it was once called — is reduced. Innovative response through alternative technologies may mitigate this, but the prospect is almost inevitably for reduced product and for sharing these reduced portions among increased numbers of aspirants. This central fact must shape the way planners view the future and respond to that view through social plans, policies, and programs.

5.1.2 *The Process of Sharing Less Among More*

Yet another current running is the growing pressure to assess and meet the basic needs of populations which are increasing in numbers and raising their aspirations. In meeting these needs in the social system, there is the further contributory stream of objectives that seek to increase the participation of a massive and growing population so that they may determine their own needs and both the manner and pace in which they shall be met. Planners in the social system must respond to this future force as well, and conflict is likely.

5.1.3 *Power and Control of Sharing*

These currents may well not converge, and the distance between them may at best be narrowed not only by reducing waste and consumption but also by distributing products more equitably. This may have to be accomplished with more and not less exercise of power and control, for the convergence must be engineered across class and national boundaries. Instead of convergence there may be class conflict and destruction.

This, it seems, is the central setting for the future, with the problem founded in physical systems limits but resolvable only through social, political, and economic analyses, and the plans, policies, and programs they shape. There are also other secondary streams that may be tributary to the central currents and thereby affect their course.

5.2 *The Contributory Potential of Learning and Communications Systems*

The technology for increasing human learning through mass communication of knowledge is already reducing population growth, but not reducing the pressure on resources. Communications could be used to reshape human aspiration, so that the consumption and waste that competition inspire are devalued, and internalized control and cooperation are increased. There are few signs of this, except among elites for whom competition is less critical, but then it is only these elites who have shared in the first fruits of improved learning and increased knowledge. Perhaps the message will be accepted by all; but if there is one set of activities which social analysts and planners should address for the future, it is the reshaping of learning systems and their environments — schools, the workplace, media, and social groups and organizational contexts. The central outcome of learning in an alternate future society will have to be a sense of reward from consumption foregone. Sacrifice must be accepted willingly by more than elites who opt for abstinence after the fruits have been tasted and the tree remains there for the shunning. There is the much more difficult task of educating so that all the population work harder, receive limited material benefits and enjoy it more. For this the educator must

get below the surface of present political and economic systems and their professed and unlived ideologies.

5.3 *Organizations and the Basic Community*

Working against the positive flow from improved and expended learning systems is the fact that political and organizational structures are not disintegrating, or even opening their windows. Nor is there persuasive evidence that increased political and educational openness are coming. Where are the alternative, open forms that will serve to maintain a future of increased satisfaction from reduced consumption? Not in the notion of networks, at least until the learning systems of the future can handle deep forms of affective leaning as well as they now handle deep forms of cognitive learning and shallow forms of affective learning.

5.4 *The Base for Affective Learning: The Family*

A disturbance, rolling under all currents, is the decline of the family, which is first among communities. For good or ill, the family has been the only group in which social relations have sufficiently strong bonding to sustain and reward members who accept mutual, social sacrifice. In the Calcutta bustees, where there was nothing else to shelter man from madness there was family, and only on the foundation of this primal community can a future of sacrifice be sustained. If affective learning is to shape and mediate a future of conflict between natural decline and the social growth necessary to accept decline, the degradation of the family environment, ironically in those societies where concern for the natural environment is most advanced, is a tributary if not central current to which planners must attend. Planners work within state structures and not within family structures, but fortunately many live within families and it may be hoped, will have the chance to develop benign social policies through practice there. There seems no other social group but the family on which the burden of affective social learning can be placed.

5.5 *The Control of Affective Learning Systems*

In the development and control of affective learning, based on the family as primary community, there is a resource to be developed that in future potential can replace the physical resources that inevitably will be depleted through time. This is the resource that is currently dead, filed under *female* in the bulk populations of the world. One obvious current in the future will be the opening of this group to the opportunity for full economic and political participation. As a consequence of this, work and struggle may provide a surer test of those who are fitted psychically for leadership in developing the affective learn-

ing that must prepare humankind for mapping the convergence of currents of the future.

Proposed is something somewhat beyond giving those presently classified as female control of the powerful technologies of learning systems and communication that must surely dominate the future if humankind is to survive. The proposal is that social role be determined by free individual election after trial and test, and not by physical accident attendant on birth; and that the determination be based on the preferred and dominant method of dealing with problems in the world. There might be three role categories: physical, intellectual, and affective; and the latter group, predominantly female until the culture changes, would control the communication and learning facilities which shape basic values. Reproduction of the species would go on as physiology and technology dictate, but not dominate other vital ecological, social, economic, and political dynamics of thought and action for social survival.

6.1 *Other Eddies and Flows*

There are other currents to which the planner may attend, according to his ranking of values and his judgment. These may be Principia Media of a dying force, but with consequences for the near future.

6.2 *Urbanization and Industrialization*

Urbanization may have spent its force in some parts of the world, but there are still strong effects from migration and the attendant social pathologies of rootlessness and family and communal deterioration. These signs of urban disorganization and chaos are apparent to the unaided eye. Some students of urban ecology, Smock, for example (1971), see signs of better tidings for cities, where the diversity of the populations may be the basis for future social strength, and the city may provide the setting for resurgence and social growth. Others see the city as perhaps providing the foundation from which some as yet unidentified social form may emerge.

We may infer from the wide acceptance of the term *post-industrial society* that industrialization, at least in its own form, is a partly spent force, in the backwash of which we now live, rather than future force. This seems consistent with the central ecological argument and the alternative technology advocacy. Still, many rundown mills will have to be turned into museums and schools before the old form disappears, and alternate technology and cottage industry may permit swords to be beaten into plow shares, or the reverse. Industrial and manpower planners are still sketching out their near futures pretty much as of old, but there is more attention being given to the service professions in even the smaller and less complex economic plans. Here the concern is for future changes that are more sweeping in their effects.

6.3 *Denationalization and Decentralization*

Some see significance in the trend toward greater differentiation within nation-state boundaries. The strength of some tribal, ethnic, and old national groups may be rising and the power of the central national unit declining.

In partial response, planners and policy makers have stepped up the rhetoric on differentiation, and in some cases educational programs have followed which address linguistic and cultural differentiation and aspirations. These forces and responses can only continue in the future. The improvement in learning systems technologies will be capable of serving more diversity. More books, and books in a greater number of languages, are coming into countries where homogeneity was once a sound economic argument. The same is true of media broadcasts.

National fragmentation and decentralization currents run strongly at the same time the trend toward transnationlism continues. The power of the multinational firm grows. The world state does not seem to be emerging, but perhaps the basic ecological framework and need will permit attention to problems across national boundaries. Within countries there is much talk of decentralization of services and social response, and this is sometimes combined with hopes for increased local participation and more equitable distribution of power. This is a force that is clear in most national planning and will continue to be. Allied with it are the the expressed needs for bottom-up as well as top-down strategies (Hudson 1976), and this trend will continue. Planners have been accused of resisting this trend because it makes their work more complex, but this does not seem an accurate assessment. Planners may well welcome the trend to participatory planning: first, because even if it makes work more complex, it at least makes more work; and second, because planners thrive on systems conplexity even when the systems do not.

Decentralization, participation, and bottom-up strategies are the preferred political and social approaches of most of the liberal elites who foresee alternate futures. The inherent paradoxes have been mentioned. As a broad trend, it would seem that decentralization, participation, and local differentiation can only increase steadily in the future. The improved learning and communications technology will facilitate it; the improved educational levels of the population will require it; and both planners and their critics are in favor of it. No political or economic system or ideology is publically *for* dependency, although one gets the impression that the dependency theorists are taking on the dark forces of the world. Conservatives are against dependency as it is manifested in welfare action, at least at retail level. It becomes industrial development when governments wholesale welfare to large industries. Anti-imperialists are against dependency fostered by nation-states and multinational firms, even when the

patron states and firms claim to be aiding weaker states. People believe in the work ethic left and right, and both majorities and minorities are against patronage. Majorities oppose it because it costs them money and time, and minorities because it is partial and demeaning.

The disestablished Marxists, especially in the affluent countries, oppose dependency fostered by imperialism espouse local participation under ideological guidance, and advocate policies and programs that promote more equitable distribution of economic benefits. The future should be hospitable to these features of their social program, but other political winds may prevail if there are unbearable scarcities and competition among chauvinist nation-states or transnational firms.

7.0 *Summary*

These and other currents run into the future, and the planner must identify them and trace their consequences as best he can. The selection of a framework for viewing the present and glimpsing the future is arbitrary and based on the values of the viewers. The ecological framework is no exception to this. Once the danger signs in natural systems are read out, all futher response is determined by political, social, and economic forces, and analysis must go forward in these system's frameworks. The message is to open up these narrow economic and social frameworks where they have been closed to ecological concerns.

In the social system's frameworks, the population and its characteristics are the basis for analyzing key variables, characterizing their relationships, and developing indicators of past and present status and future possibilities. There are no systems of thought that cover social systems comprehensively, and yet permit analysis of social forces in all their details and complexity. Systems of social thought do help in diagnosing broad forces that move toward the future. Some of these future currents will conflict, or interact in ways that cannot readily be analyzed. Selection of certain broad forces that will shape the future is arbitrary, as the choices here illustrate. But futures thought is not devoid of reason and usefulness, even when it is difficult to trace the future or to do anything about it, to the extent that it can be glimpsed. There remains the question of whether future changes in natural and social systems can be understood, and diverging currents charted, without some encompassing teleological framework. Transcendental religions have provided such a framework, but materialistic ideologies do not seem to stretch this far, at least in our age.

CHAPTER 15

Themes and Issues in the use of Research for Educational Planning

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1.0 *Introduction*

This chapter reviews research themes and develops a typology of research useful in educational planning. At some point, all research may turn out to be useful, but planning is a dynamic process with multiple phases, so not all research is always useful. There are even some who say that most research in education is never useful. It appears that much of the research that has been done has not been used by planners and administrators. Our purpose in examining this issue is to explain why that might have been the case. We will attempt to develop a catalog of the types of research that may be more useful in educational planning.

The catalog is intended to serve three purposes. First, it can be used to see where to start doing research for planning. It provides a means for assessing where an organization stands in terms of the kind of research needed for planning. The second purpose derives from the first. The catalog can be used to evaluate research proposed by those outside the planning establishment, in terms of appropriateness given the organization's situation. A third use for the catalog (and the concepts underlying it) is to suggest readings for planners who would like to review research techniques. In general, the catalog tries to indicate what techniques are most helpful, for what situations.

2.0 *Perspectives on Planning*

Planning requires information; hence the importance of research, or the systematic gathering of information or knowledge about the

educational system and the reality in which it operates. But what knowledge should we seek? And what procedures should we use to seek it? Various answers to these questions are put forward in other chapters and volumes in this collection, and reflect the various perspectives on planning that derive from fundamentally different epistemologies, or theories of the nature of knowledge. This typology is built around a discussion of two major approaches to planning, which differ with respect to definitions of knowledge. These are portrayed as ideal types. No one planning exercise embodies all the features of either definition.

2.1 *Normative or Rational Planning*

The first or most common approach is alternatively called normative, rational, deterministic, closed-ended, mechanistic, preactive. Planning is *normative* in the sense that it is carried out in the pursuit of goals or objectives. The normative approach to planning takes goals as givens, determined by the society or by its leaders. Although some planners state that it is their task to work closely with political and other leaders to help develop a broad spectrum of choices, they view planning as a process in which they use the scientific method to marshal descriptive data to which leaders will then react Hauser (1969) champions social engineering to solve society's problems. Holmes (1972) has pointed out that "the important theories in educational research are normative in that they imply conceptions of culture and society." The source of national planning goals, the process by which they are articulated for planning, and the ethics of the planner as an agent dealing with basic goals are discussed more fully in Chapter 12.

A major characteristic of normative, or rational, planning is the use of models to understand what actions should be taken, given forecasts of what is likely to happen These models often are used as representations of the reality that is the planner's concern

2.2 *Basic Assumptions*

The use of models of this kind may involve several assumptions. First, incomplete data may force the planner to assume fixed coefficients. A second assumption, used to build models in the normative approach to planning, is that reality is best described in system terms. Each variable is presumed to be related to some other variable, so that changes in the values of one induce or cause changes in the values of another.

In some cases planners build models that allow for changes in variable values over time In normative planning, the model builder may assume that the values of these variables at different times are knowable. The models are then used to work out and illustrate to decision makers the consequences of different combinations of input and

process variables. Not all models are rational in the sense of depending exclusively on known facts about reality. Models can be built to include other elements. Model builders distinguish between algorithmic models, and heuristic models (See Volume II, Chapters 1 and 2).

The argument is made that early versions of rational plans were inadequate because not enough information was included. The plans excluded from analysis important aspects of the structure and function of the educational organization. Warwick, in Chapter 16 argues that education is not a passive system that can be totally dominated from the outside by a technical planner. Instead, education should be seen as an active system, within which competing interest groups vie for power, and through their conflict generate the outcomes of the system. *If*, it is argued, we took into account the political structure of the system, and if we included in our models our knowledge of competing interest groups, administrative competencies, organizational history, and the like, we *could* make plans that work, plans that are used by decision makers. Warwick refers to the structure of the system as the environment of the bureaucracy, but he appears to include the variables of the environment in his analysis of the performance of the system.

The inclusion of more humanistic knowledge may not represent a fundamental shift away from a normative approach to planning Most of the people who have taken this approach (Warwick included) believe that with sufficient study it would be possible and likely to know *enough* to anticipate *enough* about the system's performance to produce the desired outcomes Their argument is not that it is impossible to predict system performance in the future, but only that it is unlikely, unless one takes into account how the actors in the system think and behave

2.3 *Procedures in Normative Planning*

Normative planning assumes the following sequence is the correct one to follow One begins by identifying goals A diagnosis of the present situation indicates the extent to which these goals are being attained. To increase attainment the planner begins to look for alternative courses of action These are evaluated in terms of the resources available and the relative costs benefits of the alternatives A choice of alternatives is made The writing down of this logical process, and the statement of the actions to resolve the problem, is called the *plan* A formal presentation to the public is contained in a *plan document*

The description above is an oversimplification Plans are only initial statements which must be modified as more information becomes available Final plan documents, however, seldom if ever get modified Planners may go on to do other things

The plan serves as a map, as a model of reality, that indicates where

to go and how to act, given the boundaries and goals established by others. The plan serves as an indication of what will happen in the future. It implies that if its recommendations are carried out, then desired outcomes will be realized.

5.1 *An Alternative Approach to Planning*

The second ideal-type of planning may be called *situational* planning, or open-ended, or interactive planning, Davis refers to it as *street rational* and distinguishes it from the first type of planning, which he calls *straight rational*, but the term *situational planning* is a more adequate description (USAID/Harvard Project; Paper 74, Davis 1979). Situational planning assumes that many of the important aspects of the functioning of human organizations are not predictable except at very short range This is so because those organizations are run by persons whose perceptions of what is possible and what is desirable change as a function of the situation in which they are placed. The main concern of the planner should be, therefore, not prediction of, and preparation for, the future but rather the shaping of the present

Planners trained in social science research techniques, especially in quantitative sociology and economics, may have difficulty in conceiving of a nondeterministic, nonlinear, nonrational world. The following example, based on ideas of Matus (1977) may help to make clear some of the assumptions underlying situational planning

The game of chess is a model of reality of a medieval society Obviously it is only a model, and a crude one at that, failing to capture what we might consider some of the more important aspects of medieval life and times Even this simple model presents a tremendously complex set of alternative outcomes, so many that for years computer programmers found it extremely difficult to build the program that would allow the machine to play the game as well as most people play it If one defines the system of a chess game as including only the pieces on the board, one has a low probability of predicting the next move that will be made, even when the game is being played between expert players Predictions three or four moves ahead are impossible In part this is because some moves in chess have the ability to change the structure of the game, to alter the relationships between the pieces, so that the best following move is totally unlike what it would have been had some other move been made

But, more importantly, the pieces on the chess board do *not* move themselves, they are not governed by some inner logic and overarching perception of the system of the board that allows them to choose the best move. The move which is made depends on the players, who have not only varying perceptions of the possibilities on the board, but also varying objectives in playing the game. For example, one player may be seeking to win, another might want only to stalemate (tie).

These objectives change during the game as the players' judgments of their chances for winning change with the play. After several moves, for example, one player may see that he is likely to lose within the next five moves, and decide to play for a stalemate. The other player, who perhaps started with a pessimistic evaluation of his chances, switches his objective from stalemate to victory. Even more, the style of play of each player is a reaction to the style used by the other player. In response to one kind of attack the other player uses a given defense; when the attack changes, the defense changes, and so on.

In this situation, then, even full knowledge of the present would not make long-range planning possible. In planning, the model is more like Kriegspiel than regular chess In Kriegspiel each player has to guess the movements of the opponent—they do not share a common board. The players must constantly infer their opponent's moves and intentions on the basis of limited information (Hollis 1977).

If we could have full knowledge of the future, including changes in the objectives of the players, a model of the play of a chess game would in fact predict the outcome of a game. But as soon as we planned to change the outcome of the game, the future reality of which we would need knowledge would also change. Skillful chess playing does not depend on long-range forecasts so much as it does on being able to correctly diagnose each situation as it occurs, and move to create a more favorable situation After each move of his opponent, the player makes a new assessment of the situation and plans his next several moves on the basis of assumptions of how the opponent will respond The computer programs designed to play good chess now do the same thing. Rather than store in memory the extremely large number of possible games that can be played on a chess board, the computer develops a capacity to evaluate each situation in terms of its immediate (short-run) possibilities Decisions are made on the basis of what is the best possible move, given these circumstances And the circumstances are re-evaluated after each move. Gabor (1969) argues that the best move is one that will allow the greatest freedom after the opponent's response.

Planning is, in this approach, a continuous process for guiding an organization toward objectives Both strategies, and objectives, are assumed as changeable and changing This kind of planning is interactive in the sense that it assumes that the organization (and the persons within it) is the subject of the planning In pursuit of its objectives the organization not only changes itself but also attempts to change its environment Each change permits a different perspective both on what is required in order to continue to move toward existing goals, and on what other goals might now be attainable, given changes in the organization and the environment Interactive planning seeks to encourage this permanent revolution in which the organization (or the persons within it) makes its own history

Rational planners may in some circumstances limit their role to the

determination of means-ends relationships, using knowledge about the past. In this situation they might be likely to assign the responsibility for determining goals to the political leader. The responsibility for insuring implementation would be attributed to the decision maker. Welsh, in Chapter 12, has defended this as the only ethical choice for a planner who is acting as an agent. In Welsh's view the planner has no right to modify the fundamental principles of the nation in which he works. Our interpretation of situational planning differs from Welsh's view. Situational planners are committed to their system and are involved in all aspects of the change process of the organization. The distinction between planner and decision-maker is blurred, and perhaps all of the responsibilities of planning are subsumed under management.

Situational planning does not assume consensus about goals and values among the actors in the system. Instead, it is assumed that actors may have fundamental and irreconcilable differences in objectives. Solutions are therefore almost always compromises, worked out in essentially unpredictable transactional processes. Knowledge of actors' values, while useful, is not sufficient. Schon (1971), after reviewing a battle scene in Tolstoy's *War and Peace*, comments that

> The implementer of public policy, like the commander in-chief, works in a situation whose inherent ambiguity expresses itself through the incompatible perspectives of the key actors (p. 23).

Ackoff (1974) states the case this way:

> . . . interactivists try to design the systems they control so as to increase their ability to learn and adapt rapidly. They maintain that experience is no longer the best teacher, it is too slow, too ambiguous, and too imprecise.
> Therefore, they attempt to replace experience by experimentation wherever possible. They try to design the implementation of every decision as an experiment that tests its effectiveness and that of the process by which it was reached (p. 27).

Situational (or interactive) planning is more than just immediate decision-making. It does have a future orientation, there is a concern for what will happen down the road. But this kind of planning implies the hope that the road is being made rather than followed. It is open-ended. Describing his "human action model," Ozbekhan (1969) says:

> It is a plan in which the outcome is invented or created as something new, rather than as a solution arrived at as a result of the manipulation of givens (p. 124).

He argues the following differences in approaches:

Mechanistic Model	*Human Action Model*
Goals given from outside	Selects values, invents objectives, defines goals
Designed to solve specific class of problems	Seeks norms, defines purpose
Internal organization independent of purpose	Higher-order organization defined by purpose
Controlled by external policy	Self-regulating and self-adaptive
Programmed actions toward given outcome	Regulation of steady-state dynamics through change and permanence of meta-system's self-adaptive and self regulatory tendencies, through policy forumlation
Feedback and general control by action amplification	Goal-derived feedback
Emphasis on feasibility (timeliness) of alternative action schedules	Defines mechanistic system's operational characteristics

3.2 *Normative Planning and Research vs. Situational Planning and Development Research*

The previous contrast between different conceptualizations of planning has its parallel in different conceptions of the process or activity of research. For example, Guba (1968) distinguishes between research and development as two different sequences of data-gathering and analysis. He lays out the following steps in the sequences:

Research	*Development*
Depict	Depict
Relate	Invent
Conceptualize	Fabricate
Test	Test

The researcher depicts much as a painter depicts; he attempts to discover the salient elements in the situation and then to portray them in their appropriate relationships and contexts. The developer depicts not to *portray* the process but to *monitor* it, to discover problems in their still incipient stages and thus to be able quickly to counteract them.

The researcher tests in order to *verify or refute his hypotheses*. It is imperative in his testing that he maintain

> vigorous control over all elements so that only those that enter specifically into the hypotheses can interact . . . Thus we establish universal laws. The developer is not concerned with controls, however . . . When he develops a solution to a problem it must be clear that it will work not only in the laboratory but in the worst of all possible worlds in which everything irrelevant is free to contaminate (p. 47).

Patton (1975 p. 40) contrasts the "dominant" or conventional approach to evaluation research, with what he argues is a needed "alternative." The alternative paradigm he describes is congruent with a situational approach to planning.

Dominant Paradigm	*Alternative Paradigm*
quantitative	qualitative
concerned about reliability	concerned about validity
objective	subjective
distant from data	close to data
focused on impact of components	holistic analysis
concerned about outcomes	concerned about process
for scientists	for practitioners
large samples	case studies
interested in generalizations	interested in uniqueness
tends to ignore interactions	picks up individual-treatment interactions

Others have suggested that Guba's view of science and research is unnecessarily limited, that what he calls "development" is just as much research as what he calls "research." They further state that for education, development is a more appropriate research approach than is Guba's research. One view is the following:

> The narrow view of science tends to define it by three characteristics: (1) as descriptive, (2) as value-free, and (3) as nomothetic. Science as thus conceived has limited utility for education, great as the utility within these limits may be.
>
> (1) According to this definition, science is purely descriptive, the investigation of relations among phenomena. But education is not, strictly speaking, descriptive, although, of course, it makes great use of descriptive knowledge. Education's primary phenomena simply would not exist if it did not produce them itself. It is an 'operative science' (to use Bacon's term) or a 'productive science' (to use Aristotle's), not a descriptive one. It is an intentional, artificial, intervention in the nature, development or maturation of human beings.
>
> (2) This intervention through education must be justified. This fact stands in sharp conflict with the definition of science as value-free. Education is intended to be 'good for' students . . . Since education does not aim at

> mere 'change' but an 'improvement' of some sort, education is inevitably involved in normative discourse and problems of value to an extent that the 'hard' sciences rarely are . . .
>
> (3) Finally, says the narrow view, science is concerned with universals, or, in more current terminology, with generalizations of extremely high probability" (Dunkel 1972 pp. 78-79).

Research, as Guba views it, might be useful if education is to be treated as a phenomenon to be studied, much as a zoologist studies a colony of ants. Studies of this kind are useful for knowing what has happened in the past, and could happen again if variables stay the same. But the nature of human communities is that they can and do seek to alter their circumstances as well as adapt themselves to them (Dunn 1971). Planning, based on research of what exists (at the time of observation), is likely, then, to be of limited utility for planning for change, or for improvement in Dunkel's terms Galtung (1973) makes this comment:

> . . . what one would have against planning would not so much be that predictions would be shown wrong or that interesting possibilities are excluded from serious attention. It is rather that long-term planning will take place on the basis of the variables considered relevant and important yesterday (p 235)

He goes on to argue

> . . one cannot from data from the past alone infer anything at all about the future. For that purpose different things are needed: a clear conception of the values one wants to realize; a tremendous amount of imagination as to educational structures that might satisfy those values, and also, very basically, theories that may justify the assumptions. In empirical research neither values nor suggestions about new structures enter, and theories may come as a consequence of empirical research but are not in and by themselves part of it (p 233)

Critical to a situational approach to planning is a theory about the desired future state, including explicit statements of objectives and of how the system could operate to meet them

3 3 *Summary*

Up to this point, two ideal type conceptions of planning and of research for education have been reviewed The first presumes that reality is stable, that relationships among variables change in ways that can be known beforehand. One can, therefore, forecast what is likely to happen in the future by the study of the present and past.

Plans for the future can be made on the basis of understanding what has happened. (Note, however, in Volume II that *forecast* does not mean *predict*.)

An alternative perspective on planning and research argues that social development is not stable because it depends on judgments and consequent actions of human beings, who are responsive in tremendously complex ways to the situations in which they find themselves. Predictions can be made with any degree of reliability only a short distance into the future because people will change the present reality by their actions, and in turn, be changed by the effects of their actions.

The first approach to research and planning would suggest that we study the present, learn enough about it to build a working statistical model, and then use the model to generate not only forecasts of the future, but also the likely consequences for us of changes in major variables. We would then plan how to adapt to, or avoid, those consequences.

The second approach argues that this effort is inadequate, that instead of building elaborate computable models, we should move as fast as possible to operate in the real world, observing what happens as we attempt to realize our values. We should develop a theory (or heuristic model) about that world and improve the validity of the theory by putting it into action, by making it real.

Planning is similar to nonrational invention as described by Schon. He argues that, in some instances, invention—the creation of new forms and processes—proceeds better through the use of nonrational techniques. This means working "backward from intriguing phenomena rather than forward from well-defined objectives," responding "to problems and opportunities discovered along the way . . ." (Schon 1967 p. 18).

The second approach would imply that research and planning need to be part of the activities of the decision maker, that decision making is, if you will, part of the research process itself, and that research is a political and politicized activity and, hence, an emotional activity. It is still cognitive according to Scheffler (1977). Churchman goes further to assert that ". . . The planner has to leave off being a precise scientist. He needs to encourage radical viewpoints. In fact, I would be tempted to say that whenever planning begins to look as though it is following tried and true procedures that have worked in the past, then planning is in danger of becoming useless." (Churchman 1968 p. 164).

The contrasts between the two approaches have been overdrawn deliberately to emphasize the need to reduce dependence on the first, or scientific, approach to research and planning. The section that follows will argue that the good planner has to use both normative and situational approaches to planning, and to use both the dominant and the alternative paradigm in research to support planning. If this paper appears to come down heavily for situational planning and development research, it is because researchers and planners have tended to

ignore (the need for) these alternatives in their work and writings.

Not all planners can be accused of ignoring the nonrational uses of planning, however. For example, Davis (1966 p. 63) calls special attention to the double utility of manpower planning: to provide rational projections, and to motivate political decision makers.

Schon (1967) offers three reasons for persistence in the use of the rational approach. First, it promises to reduce uncertainty. Second, in conditions of stability, in a relatively unchanging environment, its assumptions are largely justified. It is useful for planning in a steady state.

> "but there is another sense in which belief in the rational view may be justified. There may be utility in acting *as if* it were true. The process of planning, which assumes the rational view, may be useful even though plans are bound to be inadequate. The formulation of objectives for technical effort provides direction for the effort and a stimulus for action . . ." (p. 41).

4.1 *Framework for Classifying Research for Planning*

Planning is not a unitary phenomenon It is not an action, nor a process in the sense of something that is integral. It might be best to describe planning as a set of activities that appear in a number of forms as an organization creates its own history. We may borrow from the normative or rationalist conception of planning a set of labels for these activities Planning takes place in each of the four major cycles in organizational problem-solving; we can call them detection-analysis-decision-action cycles These terms are meant to parallel Guba's scheme, and will be defined shortly Normative planning often appears to have been done on the assumption that each program or project of the organization moves through one cycle only. A more reasonable assumption is that even within projects there may be more then one cycle going on at any one time At each time, therefore, the planner, or planning in an organization, may be concerned with detection, with analysis, with decision, and with action simultaneously.

The information required for appropriate performance in each of these cycles varies What is very important to know for detection is almost irrelevant for action, and so on Similarly, the methods required to collect data vary A survey may be good at one time point and almost useless later, or earlier Different analytical techniques will be required according to the stage of the cycle.

If one is willing to accept the perspective of this paper, that planning consists of data collection and analysis in each of the stages of the decision-to-action cycle, then one must also accept the notion that all organizations plan, because all organizations go through at least some of the requisite data collection and analysis Instead of categorizing actions by the degree to which they are planned it would be more useful to talk about the quality and quantity of information used in

each stage leading up to the action. Planning is then seen as a part of each stage in the cycle, that is, as part of detection, of analysis, of decision making, and even of action itself.

The detection-to-action cycles of the organization are set within the context of a larger cycle that the organization (or a program or a project) is moving through. This larger cycle also influences the data collection and analysis process. The stages of organizational change have been identified under various labels, and certainly the number of phases is not a fixed quantity, but it seems convenient to describe three here:

— getting ready or unfreezing;

— aiding changes or changing:

— consolidating or re-freezing

This simple categorical scheme is consistent with either an evolutionary model of change or a dialectical model. That is, one can use this scheme to discuss change that is supposed to flow smoothly from one stage to another, or one can use it when change is supposed to be a series of jerking starts and stops, moving from one equilibrium point to another, with disequilibrium being the most frequent stage of the organization

The preference here is, for a dialectical model or paradigm. Much of the discussion that follows is colored by a conviction that organizational change is almost always a function of conflict between competing groups within and outside the organization. Change is seldom a result of consensus. Change does not occur without anger or passion, nor does everyone win. A death-decay-rebirth model seems a better fit to the reality of organizational change than does a progress model. Nisbet (1969) reviews a variety of models (or metaphors, as he calls them) for change. The reader will be able to detect these kinds of biases in the discussion that follows.

5.0 *The Categorization of Research*

The combination of four *stages* in the detection-to-action cycle, with three *phases* in the organizational context gives a 12-cell schema for classification and improved understanding of research

Each of the cells in Schema 15 1 requires some comments, first about the type of information that it seems most important to have, and then about the type of data and the collection and analysis methods needed to produce that information. The schema is consciously crude and no doubt will leave out much, but should help provide a framework for more careful observers to generate a complete catalog of types of research for planning.

Schema 15.1: Stages and Phases of Research

Stage	Phase		
	Getting Ready	*Aiding Change*	*Consolidating*
Detection	1	5	9
Analysis	2	6	10
Decision	3	7	11
Action	4	8	12

5.1 *Detection*

The issues included in this stage are those that deal with an assessment of the current state of affairs in some evaluative sense: "How well are we doing now?" Or, the issue may be the objectives and values that could be used to evaluate current performance, or used to assess possibilities for doing something better than is now being done.

Cell 1. Most planning, using the normative approach, assumes that it is sufficient to compare the present state of affairs with a set of objectives, or goals, that have been determined in some prior time. If the system is not meeting those objectives or performing at the levels specified in the goal statements, then something should be done. In the Getting Ready phase (Cell 1) the question is, "Should something be done?"

To answer this question, two kinds of methods are needed: those that help clarify value position, social objectives, norms, etc.; and those that describe the position of the society, organization, unit, or person on those value dimensions. These latter data could be called, if you wish, valuative coefficients, to distinguish them from the technological coefficients that are the more usual concern of the normative planner. Chapter 12 discussed examples.

Most planners have been content to rely upon official statements of goals and objectives to provide the comparative standard for their assessment of the situation. There has until recently been little application of social science research techniques to the task of developing goal statements to be used in the planning process. One example is the revealed preference method, described by Roemer (1978) for use in economic planning. The reactions of political leaders to sets of alternative development strategies are analyzed to reveal their implicit goal rankings.

Methods that could be used to identify goals are the sample survey, content analysis of public documents, and occasionally structured interviews. There has been some work on historical content analysis (Alvarez 1975). In general, little work has been done on the methodology of assessing objectives and goals of collectivities for use in educational planning. Table 15.1 is a list of 34 priority topics for research on education. Among the 8 items classified as Detection

research are three topics (3, 14a, 16b) that might be considered as relevant to methodology of goal assessment.

The second kinds of data required are the descriptive statistics traditionally used by planners to measure the fit of performance to objectives. We are now learning to use indicators rather than the ill-defined educational statistics collected by all ministries. Two examples of work on indicators are OECD (1973) and USAID (1977). (See also USAID/Harvard Project; Paper 25. McGinn 1979).

The international donor agencies have developed their own set of measures to answer the question of whether they should make loans. McGinn (1979), in his paper cited above, "Information Requirements for Educational Planning," argues that these measures reflect the biases of the international agencies, and are not necessarily good measures of the objectives and goals of the societies, states, or organizations running the educational system.

The contrast between normative and situational approaches to planning shows clearly in the kind of information used to answer the question posed in Cell 1. Situational planning (more common among national planners than among the international agencies) asks, "Is this a situation in which something can be done? Is there a *coyuntura*, a coming-together of events, that makes it possible for something to be accomplished at this moment in history?" The focus is less on the fit between goals and system performance and more on the availability of resources and the structure of forces necessary to bring about a change.

It is not that the current state of affairs is ignored On the contrary, the situational planner necessarily must be aware of the kinds and extent of dissatisfactions of actors and interest groups in the system. The very process of raising the question of adequacy may be used to test the possibility of mobilizing the system for change. This clearly was one of the objectives of the National Educational Congress called by President Allende in Chile in 1971-72 The planner is interested in raising levels of consciousness He wants to identify possible constituencies (interest groups, pressure groups, centers of power) whose support could be mobilized for the process of generating change in the system

Little research has been done on ways to accomplish this effectively. Chapter 16 addresses the problem of assessing the structure of power in a ministry of education, and DeHasse (1979) attempts to trace the network of relationships through the educational system We know little about how the action of asking questions can be part of forming the answer.

Topics 1, 4, and 9 in Table 15 1 exemplify the kinds of work that normative, rationalist planners have done. The argument is that analysis must first identify what the system really needs (in terms of some functional pre-requisites for successful performance). The second task is to persuade decision makers of the validity of the research.

Table 15.1
Classification of 34 Topics for Education Research Priorities by IDRC, 1976

Detection

1. The development, evaluation and application of methods to identify minimum skill requirements such as reading, writing, arithmetic, and basic knowledge of the environment.

3. The development, evaluation, and application of methods to identify attitudes that the society values and the extent to which they can or should be transmitted or reinforced by the school system.

4. The development of studies prior to implementing education programs to identify the skills and knowledge that can be utilized by rural people within existing economic and social contraints.

9. Studies of core knowledge, skills, and attitudes useful to a wide range of occupations, that schools could provide. In particular, what are the skills and attitudes valuable for a life of productive self-employment (whether in farming, commerce, or craft industry), and how are these best developed?

14a. What effect do local demands have on national plans and resouce allocation?

16b. What factors inhibit effective communication upward from local communities and downward from national policy makers?

Analysis

5. Studies of the impact of some conventional schooling inputs—teacher qualifications and training, class size, school architecture, media—on the quality and efficiency of education. In particular, can the period of teacher training be reduced without affecting teacher quality or pupil learning?

6. Studies of nonschool determinants of learning, such as nutrition and health, that can be influenced by policy. This type of study might find, for example, if there are trade-offs between free lunches and higher-level teacher training.

8. Studies to determine why students leave school before completing the primary cycle; what they do after leaving; what they gain from school; and to what extent literacy, knowledge, and skills are lost when primary school pupils leave the school system.

11. Studies of the employment history of past graduates to improve the understanding of training needs and how training is acquired and utilized.

[a] Based on International Development Research Center *Educational Research Priorities, a Collective View, Ottawa 1976.*

12. Improvements in the routine collection of data, such as current and projected demand for schooling and quality of schooling (availability of textbooks, qualification level of teachers, pupil/teacher ratios); detailed studies of the procedure for determining the size and distribution of allocations for school development as they relate to the performance of pupils, in terms of their region, sex, ethnic group, etc.

17a. What are the characteristics of effective teachers and administrators?

17b. What kinds of training programs, what combination of pre-service, in-service, correspondence courses, workshops, etc., develop desirable characteristics most effectively and efficiently?

17c. What are the incentives that attract teachers and administrators into the field and affect morale?

17d. To what extent is the quality and training of the head teacher a key factor in the success of the primary school?

18a. How do individual educational innovations tend to spread?

18b. How can successful "pilot" programs be tested for their transferability to other locations, and replicated on a large scale?

19a. Coarse indicators of comparative costs of various educational programs can help the decision-maker in the process of allocating resources more efficiently to institutions and programs

19c. Can detailed cost-effectiveness studies of various forms of higher education, which often have unit costs many times that of primary school, reveal potential savings that could be transferred to lower levels of the education system?

20a. Studies that analyze who is currently paying for different levels of education compared with who benefits by receiving the education can help reveal the nature and effects of inequalities and the extent to which public expenditure is subsidizing students from high-income families at the expense of poorer students A number of such studies have already been undertaken, but more are needed to complete the picture

21. The design of reliable and low-cost literacy tests and standardized achievement tests, including reliable and valid tests for minority groups Tests that the classroom teacher can both administer and analyze could be particularly useful.

22. Although specific program evaluations (for example, of educational technologies, nonformal education programs, and vocational training) may suffer from difficulties associated with measuring relevant learner outcomes (particularly behavioral changes) and attributing these outcomes to the education program as opposed to

other influences, the results can be sufficiently reliable to indicate overall program worth, costs, implementation problems, and possible improvements.

23. Evaluation of methods to improve teacher training and teacher supervision.

Decision

2. Experiments with the most cost-effective methods of providing those skills such as reading, writing, and arithmetic, which are considered basic requirements.

7. Experiments with the use of the vernacular as the medium of instruction in the early years of primary schooling with a view to improving pupils' long-term school performance.

10. Since there is little evidence that high-cost training schemes are necessarily effective, there is a need for experimentation with an evaluation of alternative vocational training schemes such as apprenticeship, informal on-the-job learning, and programs managed by industry and government and financed by employers and employees.

13. The design and implementation of the most cost-effective means of redressing these imbalances, such as special programs or new financing formulae.

15a. What record-keeping systems can be developed to help in the collection and utilization of basic data on the system?

15b. How can manuals and procedural guidelines be developed to assist headmasters and inspectors in carrying out routine tasks?

19b. Studies of "unit" (per pupil) costs in conjunction with experiments that analyze the effect of various inputs on the desired output of the educational program could indicate potential savings within institutions. For example, can school buildings be used more intensively through double shifts or teachers more intensively by increasing class size without reducing output? Are guides for teachers a more effective use of paper than textbooks? Are additional expenditures on in-service training programs after schooling a more cost-effective use of resources than the provision of more textbooks during schooling?

20b. The identification, implementation, and analysis of alternative sources of financing, such as local financing for pre-university education, or student loan programs for university education, could suggest a more equitable distribution of existing resources.

23. Evaluation of methods to improve teacher training and teacher supervision.

Action

14b. What is the role of the educational establishment in

encouraging or impeding educational reforms?

14c. How is research commissioned and used?

15b. How can manuals and procedural guidelines be developed to assist headmasters and inspectors in carrying out routine tasks?

16a. As systems grow more complex, what functions can best be performed at the local, district, or provincial levels, and which in the central ministry?

16b. What factors inhibit effective communication upward from local communities and downward from national policy makers?

To gain agreement requires either that there is consensus about objectives or that there is a possible arrangement of the system that will satisfy optimally the needs of all participants Situational planning assumes that there is considerable disagreement about objectives, and that the eventual task is to find that combination of forces that will make it possible to bring about change in a direction favorable to the interests of the group -to whom the planner owes allegiance. Presumably those interests are reasonably well understood. The problem in Cell 1 is to determine whether there are objectives and policies that could mobilize people with those interests, and whether the situational context makes such a mobilization feasible

Cell 5. The major macro-policy decisions have already been made for the system when Cell 5 is reached The methods needed to clarify value positions, power settings, and the performance of the system, shift from the national scene to focus on the leading bureaucratic officers within the educational establishment Attention is more on programs and sub-programs than on the total system, and the fit that is examined is between the performance of those sub systems, or programs, and the objectives set for the system (whereas previously the performance of the educational system was compared with societal goals) Indicators thus become more important, but we will delay a thorough consideration of them until we have examined Cell 9

In almost all cases, the leading bureaucratic officers within the educational establishment are policy makers who translate political decisions, made at higher levels, into broad policies for the organizations over which they have authority In many cases these policy makers are foreigners in the system, that is, they are named to their posts from outside Typically, few have ties to the organization and often do not stay long within it They include the group of critical actors with and for whom the planner will work, plus their allies and opponents Whereas in Cell 1 (getting ready) a wide variety of sources were consulted in order to identify broad currents and trends, in Cell 5 (aiding change) emphasis is on understanding the value positions of a relatively small set of individuals persons (not groups) who will have most influence on what takes place. The essential information is how

these actors define their objectives, the range of alternative actions that they see as feasible, and the points at which those alternative actions are contradictory or supportive of each other Roche (1972) has done some interesting work on the measurement of perference curves of decision makers. Organizational analysis is more helpful than systems analysis.

Cell 9. After changes have been made in the system, emphasis is on consolidation, on insuring that positive accomplishments are continued and that less successful innovations are phased out. The policy maker or change agent's objective is to prevent the counterrevolution that will come when those disadvantaged by change marshal their forces in an attempt to recover what they have lost.

Those who led the change have an important advantage on their side. It is easier to maintain something that exists than it is to create something new: what exists usually does not need to be justified, whereas new programs must be. In this stage as in the first, the critical information required for detection is the extent to which programs are reaching desired objectives. But whereas in the Getting Ready stage that information was used to generate change, in this instance negative results are used to generate organizational conformance The actors in the consolidation stage are now policy implementers and administrators who need information about the extent to which the organization is running along the course laid out for it The emphasis, then, is on control The most effective control device is one in which program operators are asked to report their attainment of previously set targets based on the broad objectives of the change movements

The indicators used in Cell 9 differ from those of Cell 1 in that typically they are concerned with the internal operation of the ministry For the normative planner there is less concern for how the product of the organization fits with the needs of the society, questions of that kind presumably were settled by the process of change The system has discovered what to do, now the issue is whether or not it is doing it Educational organizations in Cell 9, therefore, are interested in questions of efficiency and achievement, but not particularly in the relevance of education for society

Normative planners tend to be less concerned about whether the information they request serves to generate compliance among the operating units in the ministry They worry less about the validity of the information The rationalist approach tends to show less sensitivity to the organizational contexts in which data are produced Normative planners tend to treat all numbers the same, to assume that all requests for information generate the same reaction from those who supply the raw data Schiefelbein (1975) has demonstrated the limited worth of many of the statistics reported by ministries of education as, for example, the severe under-reporting of repeater rates Most data collection systems in education rely on the goodwill of reporters who

often have interests that would be jeopardized by reporting truthfully. (For example, in many countries teachers whose class size goes below a certanin minimum face transfer to other schools.) A situational planner in this cell would strive to increase awareness that the numbers are being used to evaluate compliance with organizational objectives while also striving to maintain validity.

In Cell 1 there would be an equivalent concern for validity but the process of data-collection would be designed to increase non-compliance and desire for change. The dialectical process followed in the situational planning approach requires the definition of a thesis (Cell 1), the elaboration of an antithesis (Cell 5), and the implementation of a synthesis (Cell 10). Organizational compliance is essential if the synthesis is to be achieved This synthesis then becomes the thesis for the next iteration. The situational planner must, therefore, be concerned about the psychological and organizational effects of his technical behavior, as well as about the validity of the data collected

Table 15.2 (a)
Major Research Techniques for Normative and Situational Planners

Relation to change process	Detection
Getting Ready for change	Cell 1 Description of Broad social problems in value terms — who gets what, to what effect Use means distribution statistics
Aiding Change	Cell 5 Target related Identification of values and states of critical actors, both within and outside system Systems analysis, description
Consolidation	Cell 9 Indicators Summative evaluation to induce compliance
	Much popular literature serves purposes of Detection especially description of educational "needs" based only on description of social problems

There has been no work on the consciousness-raising effects of different kinds of data-gathering techniques, or the role of data collection in the political process of an organization. In recent years there has been an increased interest in qualitative research techniques that, in principle, are more sensitive.

5.2 *Analysis*

This stage confronts issues that examine why current performance is or is not adequate. Research of this kind attempts to provide information on the performance of the system in terms of the interrelationships of elements. It is therefore useful for understanding how the system works or why it does what it does. Analysis issues are also concerned with methods. (This phase might also be called diagnosis.)

Cell 2. Once the judgment is formed that something is wrong, and that action might therefore be necessary, the planner-decision-maker in the Getting Ready phase needs to understand what it is about the functioning of the present system that leads to failure, or at least to a sense that things could and should be better, in other words, the decision has been made that something is wrong, and the question is, "What is it?" Now the need is to look at *why* the system is producing undesired outputs or failing to produce desired ones.

The answers to these questions will not tell the decision maker what to do to correct the situation—that is, what is learned in this stage, although it points the way to a determination of solutions, is not adequate in itself to correct the system's performance. Analysis provides the researcher with a set of statements linking indicators of system malfunctioning to measures of system input, or process, but it does not indicate what would be the consequences of changing levels of input or characteristics of process.

For example, a planner might begin with research in the Detection stage that indicates that the economy is not performing well. An inquiry which determines that a shortage of skilled manpower is a major cause, would be characteristic of Cell 2 research. Or, given a Detection study that shows that the system is not producing enough skilled manpower, Analysis research might investigate whether this is a function of insufficient input to schools, a high dropout rate, or too much repeating. Our language encourages us to see the solution of the problem in the elimination of the symptom, e.g., in dictating a change in dropout rates or mandating increased production of skilled manpower. But often these variables are the result of a series of other variables and cannot be changed directly. Hence Analysis does not necessarily provide all the information necessary to correct a problem.

Research in Cell 2 generally involves associating performance—as measured by some output indicator—with variables describing either input or process characteristics of the system, or status characteristics (classificatory) of participants in the process. Four

major kinds of output measures are used. These are measures of the: quantity of outputs (which may be graduates or dropouts); qualities of outputs in terms of knowledge or abilities; qualities of outputs in terms of subject matter and level; and cost per output. The input variables include measures of qualities and quantities of teachers, buildings, and students. Process variables rarely include more than some nominal measure of program characteristics. Daniere (1979) has reviewed a number of sector assessment studies of USAID which are typical of analysis research. Also typical are production function studies, cost-benefit analyses, and manpower studies. Most published academic research on education is done on Cell 2 questions. Much of this research is denunciatory. It tells what is wrong with the current system (given the usually implicit values of the researcher), but it seldom provides useful insights on what to do about it, being content to urge only *not* doing that which is wrong

The popularity of this research can be attributed to its usefulness in bringing about a process of change Cell 2 research is critical in the Getting Ready stage as a first step in mobilizing support behind specific solutions that will be proposed later Denunciatory (or descriptive) research itself does not define those solutions, however Its major function is to unfreeze commitments to previous solutions To accomplish this, it is necessary that the research and its results be presented in the most impressive manner possible Sympathy for change is detected in Cell 1 Research in Cell 2 is used to persuade people to withdraw their allegiance from elements of the existing system

This research will most often be done by the planner, or commissioned by him It represents a deliberate attempt to influence the structure and process of the educational system and must therefore be justified in ethical or moral terms As many critics have pointed out, behavior is only rational in pursuit of objectives Rational planning necessarily involves choices, and choices imply values The normative planner is obliged to state the value premises within which he operates, this means acceptance of a set of objectives already determined, if not by an individual, by a social system to which the planner gives allegiance

> The issue is not whether it is possible to employ empirical and quantitative techniques, but rather how to employ the results There has been an overwhelming tendency in mainstream social science toward reification, toward mistaking historically conditioned social and political patterns for an unchangeable brute reality which is simply 'out there' to be confronted In the eagerness to build a new natural science of human beings, there has been a tendency to generalize from regularities of a regnant moral paradigm, and to claim that we are discovering universal laws The most serious defect in this endeavour is not simply unwarranted generalizations, but the hidden ideological bases Scientism in social and political studies has become a powerful albeit disguised ideology. (Bernstein 1978 p 106)

In all of this, the validity of the findings in terms of their social meanings is often overlooked. The researcher assumes (and seldom makes explicit) the model of society and the objectives of the educational system that is being analyzed. His research is conducted on the assumption that what is being pursued is legitimate. For example, normative planning makes much use of manpower analysis as a fundamental means of showing where educational systems fall short or overproduce, given economic targets. It is rare that any attention is given to alternative means of organizing the economy that would completely change manpower estimates.

All of the studies in Table 15.1 under *Analysis* are of that kind: all appear to take the system as given. Question 17c might be taken to indicate the presence of goal-seeking actors in the system, if the question were reworded: "What would teachers and administrators do if they were given the chance?" In all the studies the image is that of an auto mechanic cocking his ear to listen to the motor, applying his micrometers and electronic timers to determine what is malfunctioning. The essential form and process of the motor cannot be changed; it can only be adjusted. Similarly, the educational planner, given this list of research topics, would apply his technical tools and gauges of both regression and rate-of-return analysis to determine where the system was not meeting expectations. Normative planning concentrates on seeking change but only within given parameters. It is predictive or preactive. Cell 2 analysis in the normative mode tells what will happen if nothing different is done. It does not tell what might happen if something different is done.

The situational planner, on the other hand, is interested in the answers to the question: What could this system become, or be made to do? What would be required to make it do something different from what it now does? Given the present set of circumstances, what opportunities are there to make the system behave in a fundamentally different but better way?

The potential for change in an educational system depends on two major factors. First, change within the system will occur only as a result of changes in the actions of the persons who make it up. By affecting levels of consciousness by human actors of objectives and possibilities, the planner can stimulate change. Second, because educational systems are open to transactions with their environments, change is also a function of what takes place in the environment. Coleman (1972) gives an example in the United States, where there are 14 groups with vital interests in an educational policy (voucher payments for public schooling), and most of the groups are outside the school system. For the situational planner, change is possible not only by modifying existing relationships but also by creating totally new ones. The situational planner goes beyond an analysis of what is wrong with the current system to determine whether in the metasystem (educational system and environment taken as a larger system) there

are possibilities of new combinations that would be attractive to actors in the educational system and actors in the environment. These combinations may involve changes in actors' objectives, or relationships, or both.

We can illustrate this approach by rewriting some of the questions in Table 15.1. Question 5, for example, could be restated to ask, "Under what conditions do low-quality teachers do better than high-quality teachers?" "Are these conditions desirable?" Question 6 in its present form comes very close to analysis of the kind that that situational planner would welcome, except that it tends to treat the school lunch as just one more kind of input. A situational planner would ask whether the direct benefits of free lunches do not in themselves outweigh benefits from gains in education. That is, he would not take the objectives set for the educational system as final in themselves but, instead, consider larger system objectives Similarly, Question 8 could be reworded to ask whether students are better off staying in school or leaving. One could ask why the question in Table 15.1 is concerned only about primary school leavers one could ask, "Do students leave at the optimal time?" From their perspective?" "From the system's perspective?"

Question 11 is unclear as to whose needs are included The phrase "training needs" implies that there is one best way to produce graduates and that employers know it (or in any event are unwilling to change their employment practices) If, on the other hand, one knew how employers decide on what technology to use and what training to give, it might be possible to redesign the production-training system for higher productivity and efficiency The educational planner might, for example plan to train employers as well as workers As a final example, Question 17a would be rewritten by the situational planner to ask, "What are the requirements for successful relationships between teachers and students, teachers and administrators?" Success could be defined in terms of goals of the actors, goals for the system, goals for the metasystem Ideally, planning leads to realization of all three congruently

In other words, situational analysis seeks to generate alternative images of how the system could operate In order to benefit fully from the utility of this dialectic, these alternative images must represent a clear contradiction of the existing system, and they should be presented as forcefully as possible, appealing to values and emotions as well as to reason There are few examples available of how this can be done Mitroff (1971), Mason (1969), and Mitroff et al (1974) use the creation of myths about the operation of an organization as a device to enable decision makers to think about a wider set of possibilities (See also Mason and Mitroff 1973, Mitroff et al 1977) The mythic information system approach sketched partially in Schema 15 2, develops information about the problem from the perspective of the actors, but

Schema 15.2: A Comparison of "Scientific" and "Mythic" Information

Mythic, or Personalistic Information	*Scientific, or Nonpersonalistic*
1. Highly partial, personal, interested	Impartial, impersonal disinterested
2. Tends toward the specific, i.e., not generally true	Tends toward generalization
3. Hightens emotions, stirs passions, drama essential	Eliminates emotions and suppresses passions
4. Acceptance and use of bias	Elimination of bias
5. Highly repetitive, redundant	Elimination of repetitiveness and redundancy
6. Tends toward the implicit and vague	Tends toward the explicit and precise; the result either of deductive processes or of inductive experimental processes.
7. Feeling-toned	Thinking-toned
8. Takes moral stands	Amoral
9. Is esoteric	Is esoteric

Source: Mitroff, Nelson, and Mason 1974 p. 380.

also information about the philosophy and psychology of the actors that determines their response to and organization of data.

Schon (1971) has proposed similar approaches, and he describes the use of narratives, case histories, dramaturgic approaches, and projective models.

Both normative and situational approaches to planning involve intervention into the lives of others, and hence ethical concerns and value issues are raised.

The models and methods of the rational approach to planning are less adaptable to the accommodation of value and ethical concerns than are the more open-ended dialectical processes of situational planning. Planners persuade others of the validity of their procedures and results by demonstrating the scientific quality of their work. The high science techniques of regression analysis, rate-of-return analysis, manpower analysis, all contribute to that purpose. The techniques are themselves neutral, but are often used in a "scientistic" way that obscures rather than illuminates. Planners who use these techniques to prescribe policies, as is often the case, are engaging in scientism. In many cases the normative planner may feel obliged to do this in order

to overcome resistance to change, to develop a commitment to the kinds of changes that will be proposed. The techniques, then, are used to exert social influence and are no longer based on the canons of rationality.

Situational planning is ethical to the extent that it enhances the consciousness, and hence the freedom, of the relevant actors in the dialectical confrontation. Schon notes that ". . . this sort of knowledge does not relieve us of the anxiety associated with uncertainty, but depends on an ethic for social learning" (Schon 1971 p. 202). That ethic requires that the planner (and the organization in which he works) participates fully in the dialectical process, that is, be as vulnerable to change as are other participants in the process. In practice, this objective may not be attained any more completely than the objective of full rationality in normative planning. The social learning-ethic is attained least in situations where rational planning makes most sense, that is, in conditions of high stability where one group or point of view enjoys monopoly of power. The principle of vulnerability is most likely to be fulfilled in those circumstances in which situational planning makes most sense, where there is widespread dissatisfaction with the dominant paradigm, and various pressures for change.

Cell 6. Once the decision is made to aim at a given target, the heavy scientific approach used so often in Cell 2 can be abandoned. In fact, to maintain it would be dysfunctional. The decision-maker has little time between the moment in which problems are defined in the Detection stage and the deadline for taking action, if he is to maintain the momentum of the change process. Reliability, one of the prime concerns of dominant paradigm research approaches, is the first victim of the exigencies of getting the reform accomplished in time—in other words, while the political patron of the reform is still in office, before the opposition can mount its counterattack, and before the bills come due on the programs that must be established to get something going.

Often, the political realities force the planner's main concern away from the calculation of precisely what is needed. The objective is how to get as much going as soon as possible. That is, the concern now is not with the right solution—in terms of meeting some larger system objectives—as it is with the feasible solution—in terms of what can be done given the context of the larger system and characteristics of the elements in the educational system.

The major type of research that should be done in this stage falls under the classification of formative evaluation. The term refers less to a set of specific research methods or statistics as it does to an orientation toward the research procedure. Formative evaluation takes a disjointed approach to the question "What is it possible to do in these circumstances that will move us toward our objectives?" The approach is disjointed in that the small experiments that are tried out are not derived from a coherent model or theory about the system, and consequently may bear little or no relationship one to another. It is in-

crementalist in that, typically, the experiments are small in scope, focus on one specific program or element of a program at a time, take a deliberate sub-optimizing stance, and allow the system to keep running.

Conventional educational planning sometimes gets in the way of the decision maker who uses the approach to make a change in his system. The requirements of conventional planning in a situation of rapid change may exceed available time and information. Things need not be this way. It is true that the planner does not have time, once the decision for change is made, to design totally new programs to reach objectives. He can, however, introduce alterations into existing programs that might both radically change the system and extend the period of time he needs to understand how to make the system implement these new objectives. He does this by analysis of existing programs, in each case looking for ways in which to meet the new objectives through small (and feasible) modification in the existing programs. This requires an understanding of the operation of the system (gained in part through the political structure and analysis-detection done in Cell 5), as well as fast feedback on the effects of the modifications made in the programs. The kind of information that is required may not meet the conventional standards for good scientific research. On the other hand, it may be sufficient to allow the planner to monitor and guide the evolution of the system. (See McGinn in Volume IV).

More work needs to be done on the cataloging of evaluation research techniques that can be used by the educational planner. We need to know which techniques are most useful for searching through the system in order to identify those programs which can be changed and used as a means of inducing change into other elements of the system. We must know the relative time costs of the various techniques, in terms of design, application, feedback, and evaluation

Of the questions listed in Table 15 1, two come close to the evaluation research model proposed for Cell 6. These are questions 18a and 18b, which are similar to those asked in Cell 3 (Getting Ready-Decision), but require much shorter periods of time.

Cell 10. Evaluation research during the Consolidation phase has two major objectives: to demonstrate that goals have been attained; and to identify those elements of the system that should be corrected to achieve fulfillment of goals Perhaps because research of this kind does not lend itself to publication, it is of little interest to academicians and is rarely published Table 15 1 contains no examples of research problems of this kind

As anticipated in the discussion of [illegible]ction-Consolidation (Cell 9), the normative planner tends to foc[illegible]nical aspects of the problem. He uses analysis in this stage [illegible]nine where programs are failing to measure up to objectives, [illegible] changes might be useful to bring those programs up to standa[illegible] do this, he needs information on the levels and kinds of inputs being made, that is, levels of

achievement of program objectives. Often he finds that cost-effectiveness analysis is a useful instrument (while in Cell 2 he would have used cost-benefit analysis).

Table 15.2(b)
Major Research Techniques for Planners

	Analysis
Getting Ready	Cell 2 Tendencies toward Scientism—use of sophisticated analytical techniques to mobilize support for change. Regression analysis, rate-of-return, manpower analysis, cost-benefit analysis. Should rely more on techniques that generate alternative perspectives
Aiding Changes	Cell 6 Formative evaluation techniques—short-run, low concern for reliability. Evaluation of existing programs in terms of what could be accomplished with them Look for alternatives
Consolidation	Cell 10 Similar to Cell 2 but less rigorous Cost-effectiveness analysis
	Almost all published research falls in Cell 2 Much of that is "denunciatory," i e, criticizes without offering alternatives, and prescribes without adequate basis

The planner who conforms to the situational definition should pay more attention to the functioning of the administrative system responsible for implementation of the programs He should therefore have some interest in the effects of the act of evaluation on the performance of the system The analysis of the development of the educational planning office in El Salvador provides an illustration of how situational planners, motivated to consolidate the gains of a reform, used the data collection procedure as a means to insure compliance of operators

with system objectives. (USAID/Harvard Project: Paper 74, Davis, and Paper 75, McGinn and Warwick 1979).

5.3 *Decision*

Decision issues are concerned with specifying what actions to take or carry out in order to reach objectives, reduce costs, or otherwise move toward the goals specified in Cell 1 (Detection), and with overcoming the obstacles analyzed in Cell 2 (Analysis). The research supporting decisions is prescriptive: it is specifically concerned with what should be done rather than with describing what has already been done. What should be done is a question of choice, and therefore implies the exercise of values. Dunkel's (1972) comments on the limits of value-free science should be kept in mind when considering the choice of methods for research for this stage. Research cannot provide the answer as to what should be done: what it does provide is a clearer vision of the value-consequences of alternative courses of action.

Cell 3. That vision is one kind of information needed by the decision maker. In addition, he needs to know whether in fact (no matter what the cost) it is possible to carry out the contemplated action. And he needs to know what successful completion would cost, in terms of political capital as well as of physical and human resources. In addition, whatever method he uses should increase the legitimacy of the decision once made

The research methods for the Getting Ready stage include pilot programs and other efforts to generate a sample of the to-be-preferred reality that would result from a reform The planner has several kinds of evaluation techniques available to demonstrate the efficacy of the solution contained in the pilot program. If the program is an innovation, then he can use a high-science, experimental design to demonstrate the excellence of the proposal (assuming it is in fact excellent). If the new program is a variant of an existing program, then natural experiment or quasi-experimental designs are appropriate Inferential statistics, however, are often used improperly to prove that these prescribed actions will have the desired effect

Planners have experienced three kinds of difficulty with the use of pilot programs and formal experimental research First, results are not always positive If one has done the necessary promotion to attract public attention to the results, only to have them prove negative or inconclusive, a program's future can be destroyed Second, there is a tension between the need to use high-science techniques that lend an air of legitimacy to process and results, and the need to get back results prior to the time when action must be taken Experiments tend to get confused with demonstrations Decision makers are likely to observe, "If the idea is good, why a pilot project?" Or they may feel that once they have decided the present program is inadequate, they gain little additional information from an experiment (USAID/Har-

vard Project; Paper 74, Davis 1979). Furthermore, good ideas that are proved to be good after the opportune moment for introduction has passed, must wait for another turn of the wheel of history (Schon 1971). Finally, the high science of experimental designs often errs on the side of internal validity (or reliability) while ignoring problems of external validity, especially in the form of replicability in other contexts. In order to make research scientific, and to get results on time, the planner often must so alter the conditions of testing that he can no longer assert that this program is in fact possible to do in the larger system. Natural experiments and quasi-experimental designs can avoid that problem, but they are constrained by the availability of baseline or historical data on the performance of existing programs. They are limited to the known, and often ignore the possible, future.

All of the nine research topics for Decision questions proposed in Table 15 1 appear to be consistent with a normative approach to planning Some of the questions come close to suggesting turning the system on its head, but the overall orientation is one of acceptance of the basic structure of the system, and of research to make it work more effectively given that structure

A situational approach to the problem of decision making in the Getting Ready stage would emphasize the use of sharply contrasting views of possible realities The mythic model approach of Mitroff, described earlier, is one way of doing this Another is the use of a version of the Delphi technique designed to contrast different perspectives of the situation (Mitroff and Pondy 1974)

Cell 7 The disparate solutions that develop from the formative evaluation technique applied in Cell 6, are integrated in Cell 7 All the required techniques involve creation of a partial or complete representation of the system in the form of a mathematical model or simulation. The simplest kinds of models are graphic systems charts Flow models can be used to project expected numbers of students and thus the demand for teachers and buildings More comprehensive models may cover the entire educational system and aspects of the economy (Schiefelbein and Davis 1974) The sensible and situational use of these models requires that analysts apply them not so much to yield one optimal result, but rather to simulate many possible results under different assumptions of cost technology, and social objectives This provides a trial of alternative policies

In most cases the time available during the Aiding Changes period is so short that the planner cannot possibly build and test comprehensive models Only by having them built before change actually starts can he hope to be able to use them effectively Missing from most of these models is the political information that planners and decision makers need to evaluate the feasibility of alternatives or the success of their actions The information can be included in simulation models of the educational system, using role playing and game theory We know of no systematic attempt to develop this technique for educational plan-

ning, but it has been used in business and, of course, in the training of military personnel.

Differences between normative and situational planning can appear clearly in the research approaches used at this stage. Normative models are often run to show how the system would operate, given the validity of assumptions about parameters and coefficients. *Ceteris paribus* is the password; if things stay the way we believe them to be now, this is what is likely to happen. The situational planner, on the other hand, can use a series of models to study what might happen if the systems structure were changed. This can be done with series and linked models and in simulation studies which exceed historical parameters to such an extent that structures and basic relationships are changed. Interactive and dynamic feedback models also permit more flexibility and reality in portraying complex systems changes over time. Precise values may not be the important issue. Orders of magnitude and indications of interaction effects may be all that is required. (Forrester 1971; Fox 1972; Duncan 1975).

Table 15 2 (c)
Major Research Techniques for Planners

	Decision
Getting Ready	Cell 3 Pilot programs, experimental designs used to establish legitimacy of decisions made. Use quasi-experimental designs if possible
Aiding Changes	Cell 7 Mathematical and simulation models
Consolidation	Cell 11 Formal summative evaluations useful to eliminate resisters
	Some published research — usually very large, expensive studies

Cell 11. The decisions made in this stage of Consolidation are principally of the "more or less" kind. Evaluation research results from Cell 10 are used to determine which programs (from the reform) are to be kept, and which to be eliminated because they do not, in fact, contribute to the reform's objectives. High science techniques of research (such as those from Cell 2) can be used to evaluate programs that are to be abolished but which have politically powerful constituencies.

5.4 *Implementation or Action*

In this phase, the issue is the actual execution of those programs and policies defined under the Decision phase This concern must necessarily deal with the capacity of operating units within the organization to bring about a program.

Cell 4 Prior to beginning change, there must be an assessment of the competency of executing groups to carry out their responsibilities during the reform This may never be done explicitly. Effective planners do it in some fashion, but typically it has not been defined either as a subject for research or as a responsibility of the educational planner. Planners may not consider it necessary to do this kind of research when their assumptions about the determinism of a model shut out the noise introduced by human actors. Some planners have been careful, however, to examine the legal impediments to change prior to the introduction of new programs, and others have paid special attention to the training needs of existing staff who handle new programs The Sector Assessments and Sector Surveys done by USAID and the World Bank now ask for an assessment of the capability of organizations to carry out a proposed change The five questions, included under Implementation in Table 15 1, illustrate a growing interest in the problem of how to get ministries or other educational agencies actually to carry out dictated policies or programs

Of special interest, because they lend themselves to a situational analysis of the problem of implementation, are the questions proposed in morphological mapping (USAID/Harvard Project, Paper 22, DeHasse 1979) When administrative behavior is placed in a larger context it permits a planner to glimpse a wide range of possibilities and problems related to implementation Morphological mapping suggests ways of restructuring existing organizations, or ways of introducing otherwise ill fated proposals so that a program can be implemented

Cell 8 The research questions in this cell parallel those of Cell 5 (Detection — Aiding Change) The difference is that in Cell 5 attention is given over to those agencies with specific responsibility for implementation of programs The questions of greatest significance would seem to be the commitment of executing agencies to policy com-

ing from above; the resources available and personnel competency to carry out policies; and relationships with the client population and the environment that can help or hinder implementation. What little research has been done on problems of implementation has tended to focus on resistance to change by the executing agencies. Others have found it more useful to assume a desire to cooperate, accompanied by a lack of understanding of what is expected. One study suggests five questions to guide research into implementation (Gross, Giacquinta, and Bernstein 1971):

- Do people understand what is expected of them?
- Are they capable of meeting these expectations?
- Are resources available?
- Is the organization compatible with their change?
- Are the personnel disposed to change?

Cell 12. If the activities covered in the first three cells in Consolidation (9, 10, 11) of this phase are carried out successfully, not much is

Table 15.2 (d)
Major Research Techniques for Planners

	Implementation or Action
Getting Ready	Cell 4 Assessment of competency of executing groups, training needs. Legal studies
Aiding Change	Cell 8 Analysis of dispositions and abilities of executing groups
Consolidation	Cell 12 Control devices such as O & M, PPBS, organizational development techniques
	No published research

left to do for implementation. The organization runs along smoothly, following the course laid out for it previously, with malfunctioning elements detected and eliminated or corrected.

It may be useful, however, to describe methods that normative planners use to maintain quality control on the process of compliance with the mandates of the reform once accomplished. These include Organization and Methods (O & M), Scheduling, and Program Planning and Budgeting Systems (PPBS). O & M studies work out the procedures for implementation of policies. They are useful for identifying possible bottlenecks, as well as staff requirements and training needs, and provide an opportunity for the central control unit (which may be the planning office) to monitor the day-to-day activities of the executing agencies. PERT and Critical Paths are techniques for scheduling implementation. These Scheduling Methods are covered in Chapter 13, Volume II. PERT techniques qualify as research methods in the sense that they can be used to analyze staff and time requirements to carry out specified tasks.

PPBS is used both for planning and budget control. Hoos (1972) views the principal function of PPBS as organizational control in the post-decision stage. This is truer of the focus of PPBS on program objective than of the PPBS use of zero-based and multi-year budgeting, which have a planning focus.

Situational planning relies much more heavily on techniques classified under organizational development, in which the emphasis is on increasing the capacity of the organization to handle future situations within a given context. The intent is to create a learning organization in which even failures to implement are used as opportunities to help actors in the organization to develop more effective procedures and attitudes (Argyris 1972a, Argyris and Schon 1974).

6.0 *Discussion: Implications for Planning*

The above description of useful research does not include many conventional studies. Usually not generated in a policy problem context, the conventional studies typically provide little help to educational administrators or other policy and decision makers concerned with acting on the system. These studies have the following characteristics:

— The problems identified are small and deal with relatively insignificant (from the planner or administrator's perspective) aspects of the system.

— The conceptualization of the problem is often derived from social science theories more concerned with understanding a system than with intervening to change it.

— As a consequence, many, if not all, the variables analyzed are not subject to control by administrators or planners. This is the case

Table 15 3
Major Research Techniques for Planners

Relation to change process	Detection	Analysis	Decision	Implementation or action
Getting Ready for Change	Cell 1 Description of broad social problems in value terms — who gets what, to what effect Means and distribution statistics are used.	Cell 2 Tendencies toward scientism — use of sophisticated analytical techniques to mobilize support for change Regression analysis, rate-of-return, manpower analysis, cost-benefit analysis Should rely more on techniques that generate alternative perspectives	Cell 3 Pilot programs, experimental designs used to establish legitimacy of decisions made Use quasi-experimental designs and natural experiments if possible	Cell 4 Assessment of competency of executing groups, training needs Legal studies
Aiding Change	Cell 5 Target-related Identification of values and states of critical actors, both within and outside system Systems analysis, description	Cell 6 Formative evaluation techniques — short-run, low concern for reliability Evaluation of existing programs in terms of what could be accomplished with them Look for alternatives	Cell 7 Mathematical and simulation models, use more dynamic, interactive models and more heuristic models. Assume different structures	Cell 8 Analysis of dispositions and abilities of executing groups. Morphological mapping, clinical organizational studies
Consolidation	Cell 9 Indicators Summative evaluation to induce compliance	Cell 10 Similar to Cell 2 but less rigorous Cost-effectiveness analysis	Cell 11 Formal summative evaluations useful to eliminate resistors	Cell 12 Control devices such as O & M, PPBS; organizational development techniques, scheduling.
	Much popular literature serves purposes of Detection, especially description of educational "needs" based only on description of social problems	Almost all published research falls in Cell 2. Much of that is "denunciatory," i.e., criticizes without offering alternatives, and prescribes without adequate basis	Some published research — usually very large, expensive studies	Little published research, usually project reports

with social class (on the sociological level), sex (on the individual level), and intelligence (on the psychological level);

— The analyses typically use sophisticated quantitative techniques not easily understood by educational administrators;

— The emphasis is put on questions of reliability (internal validity) and statistical significance, with little or no attention to the social significance or system-replicability of the findings;

— The conclusions drawn from the research seldom are stated in terms that make it easy for the administrator to understand what actions should be taken.

6.1 *When Policy Research Should Not Be Done*

In some circumstances the kind of research that planners *should* do is the conventional research they *can* do. Unless there is a political commitment to changing the educational system, by some group or groups with sufficient power to have some effect, it makes little sense in the Getting Ready phase to carry research past Cell 1. That is, if the Detection research of the planner suggests that this is not an auspicious moment for change, it makes little sense to invest in the expensive and politically compromising research of Cells 2, 3, and 4, let alone to begin to design research for the Aiding Change phase.

The circumstances in which further research for change would seem inadvisable may be summarized as follows. First, if in fact the system is working well, then there is no need to do research on how to change it. That seems an improbable circumstance in most countries, but key decision makers may believe the system works well. Second, following from this and noted in the paragraph above, there must be political commitment to change. Third, the political climate and process of the country in question has to be one that will tolerate critical research of the kind that is proposed in this chapter If the level of political conflict has gone beyond that stage in which men and women will still attend to reasoned arguments in evaluating their positions, then research of the kind needed for planning is of no use

The lack of political commitment to change is a fairly common occurrence, even in those countries whose educational systems suffer a great many deficiencies. In authoritarian political systems there may be little willingness to review reforms made at an earlier stage in the development of the dictatorship. In democratic regimes, the cycle of elections often means that elected officials, with a chance of not being reelected, begin to lose power about halfway through their term of office. Their possible interest in change is not backed up by the ability to garner support for proposals from other political actors. In these circumstances, the researcher is advised to take up conventional research

Although this research is of little use to administrators, it is not a

total waste. First, given attention to technical excellence and to the development of research designs that capture aspects of the functioning of the system and its relationships to its environment, it can provide much that will be useful when opportunities for change do emerge. Some day the cycle of history will present circumstances auspicious for a reform, and earlier results will serve. This happened in Chile, (USAID/Harvard Project, Paper 76, McGinn and Schiefelbein 1979).

Second, some information needed by the planner involves no direct action on the system. Basic statistical information, for example, is of great importance for Detection in all phases. It also is useful for developing mathematical models to simulate systems in operation. Third, though limited in scope, research on innovative changes in the elements of the system can be helpful in developing a fund of ideas for new structures that can be used when the right moment arrives. In the interim, results can be applied in some experimental schools or classrooms. Fourth, conventional research can go a long way toward describing the structure of the system and its relationships with its environment. This contributes greatly to being able to reach the right administrators with results of planning later. Finally, after passing through a hectic reform period, and with Consolidation accomplished, there is a quiet period in which the planner can analyze his experiences. He can design research to develop more effective models of the system; to look for better ways of educating; to build up his network of relationships with administrators and policy makers; and to prepare for the next round of unending change.

CHAPTER 16

Integrating Planning and Implementation: A Transactional Approach

DONALD WARWICK

1.0 *Introduction*

One of the foremost challenges in promoting national development is to forge strong links between the planning and implementation of development programs. The record of the past two decades leaves little doubt that planning divorced from implementation contexts, or implementation unhitched from some form of planning, are often recipes for failure (Waterston 1965; Hirschman 1967). The field of development is littered with well-documented and tightly reasoned plans which were ignored by those in power, and with implementation schemes which perished for lack of central bureaucratic support. As we grope toward a more realistic and wholistic view of planning and implementation, it may be helpful to begin by setting both in their respective bureaucratic and political contexts. This paper offers a tentative conceptual framework for this purpose together with a variety of illustrations. Building on my previous work on organizations and bureaucracy, I will call the overall approach a *transactional model.*

The term transactional model is chosen to highlight the essentially interactive and political nature of effective development planning and program implementation. Before the transactional framework is introduced, however, some comment is in order on the orthodoxy of rational planning.

2.0 *Planning: Myth and Reality*

Perhaps the greatest obstacle to a more effective integration of planning and implementation are myths that surround rational planning — myths that still influence international donors and national decision makers. According to the myths, rational planning is a set of rules and procedures for relating means to ends in the most efficient manner possible. It is, in other words, an exercise in rational decision making. The several myths of rational planning can fruitfully be contrasted with the corresponding realities of planning.

Myth I: *The ends of planning are established by political leaders or other authorities; planners confine their activities to means.*

For planners to become involved in the determination of goals, objectives, or targets they would have to enter the realm of politics. Planners who meddle in politics tarnish their image of objectivity and value-neutrality and therefore their credentials as rational evaluators of means. Writing about educational planning, Ruscoe sets forth the core elements of this myth:

> The educational planner is neither a politician, responsible for broad educational objectives, nor an administrator, responsible for taking action to achieve those objectives. Rather, he is a technician whose job it is to develop and describe alternative technical means by which objectives may be developed (Ruscoe 1969 p. 20).

The good planner, in short, must stay out of both politics and administration.

Reality. *Effective planning is inherently a political activity, planners often form an interest group in themselves and advance the political ends of others*

The sharp segregation of the political and technical aspects of planning is untenable in theory and unworkable in practice. Such segregation is possible only in a situation in which planning is an academic exercise of no pratical import. Where planning has had a significant impact on development, such as Malaysia (Ness 1967; Esman 1972), its success lay precisely in its effective integration with the political process. Commenting on the successful educational reform undertaken by the Frei regime in Chile, Schiefelbein and McGinn (1975) conclude:

> Planning done in ignorance of the structure of interests and the distribution of power in society can succeed only when the planner or his patron is all-powerful. But these situations are found in few countries, even those with authoritarian governments . . . The planner or administrator who seeks to direct change must, therefore, attend to the political context of the educational system (p. 2).

Moreover, within the political system, planners are far from a value-neutral, dispassionate body concerned mainly with the public interest. First, like most skilled bureaucrats, members of planning units work to advance their own theories, enhance their influence or jurisdictional authority within the government, and otherwise pursue their own advantage. In fact, proclamations of political neutrality are often their most valuable bargaining chips in the game of bureaucratic politics. It is only by appearing to be neutral that planners will be in a position not

to be. Second, planning units and individual planners are often used by presidents, ministers, and other leaders to consolidate authority, fragment the power of rivals, and to serve other wholly political ends. As Caiden and Wildavsky (1974) observe,

> A government may find uses for planners as a group apart from the regular bureaucratic apparatus. Planning machinery may be a way deliberately to introduce a competitive element into the administration, either as a means of provoking reform or of blocking departmental ambitions. Planners may be used as a source of ideas outside regular administrative channels . . . , bypassing the normal chain of command (p. 286).

Studies of planning in Tunisia (Ashford 1965) and in Mexico (Benveniste 1970) amply bear out this observation.

Myth II: *In choosing political ends decision makers do not consider means; in recommending means planners do not judge ends*

In this orthodox interpretation of planning, political leaders select goals mainly by weighing competing interests and varying conceptions of the common good. They turn to the planners for recommendations about means only when decisions about ends have been made. Planners, for their part, propose policy alternatives suggested by "rational" critieria such as development theories, input-output models, or calculations based on production functions. Planners never reject an otherwise worthy policy option on essentially political grounds.

Reality: *The choice of political ends is contingent on the availability of means; proposals for means hinge on perceptions of political ends and constraints.*

First, the specification of goals for planning depends heavily on whether it will be possible to carry out the required activities. For politicians to set development targets without reference to the possibility or suitability of means for accomplishing them is to treat planning as a disembodied exercise in rationality. In planning, as in most decision making, goal formulation is situational, fluctuating, and means-oriented. Rather than seeking the best of all possible worlds, political leaders are more likely to ask about what problems most need solution, and about strategies that will produce perceptible results in a short time (Braybrooke and Lindblom 1963; Rondinelli 1976). (Contrast this view of goals with that of Welsh in Chapter 12.)

Second, in proposing policy alternatives, planners pick those which will be perceived as credible by policy makers and which do not require major restructuring of the government or the society. Just as

policy setters do not choose goals which are unhitched from means, so do planners not recommend means which would be seen as foolish, disruptive, or simply impossible. A Peruvian planner who recommended the return to Standard Oil of the government's nationalized petroleum holdings would be widely regarded as irrational, however sound the proposal might be on economic grounds.

Myth III: Planners evaluate all policy alternatives to assess their efficiency, feasibility, costs, and benefits. The primary basis for assessing alternatives is objective information, which is shared with all concerned.

In the rational scheme, each alternative should be carefully reviewed according to a set of precise criteria. While it is legitimate to include political costs and benefits in this assessment, they should not be allowed to override economic and technical considerations. To the extent possible, all judgements about policy options should be based on reliable, preferably quantitative, data. Subjective impressions should be avoided and, to promote objectivity, the information on which judgments are based should be made available to others. When the appraisal is completed the alternatives should be ranked according to their over-all desirability and then submitted to the decision makers.

Reality: Planners do not evaluate all policy options, nor do they give equal attention to the costs, benefits, and consequences of those evaluated. Far from being widely shared, sensitive information is often hidden, husbanded, and managed.

Some policy alternatives are not seriously evaluated at all, perhaps because they stand no chance of implementation or would be seen as "too far out." Among those that are seriously considered, the attention given is uneven. One reason is that planners usually lack the information necessary to carry out a thorough assessment of each possibility. Even if this information were on hand, the resulting evaluation matrix would be perceptually unmanageable. Moreover, the common human tendency is to be selective in perception and to move quickly toward the option that somehow seems best. As March and Simon (1958) note, "Most human decision-making, whether individual or organizational, is concerned with the discovery and selection of satisfactory alternatives; only in exceptional cases is it concerned with the discovery and selection of optimal alternatives" (p. 140-141). Schiefelbein and McGinn (1975) argue explicitly that "satisficing" is the *modus operandi* in planning:

> Planning is seldom a problem of optimization. He who plans does not look for the "best" solution, and often not even the best among the alternatives available. Because the "plan-

> ner" often finds that objectives are undefined, and because his power is too limited to "force" all the variables to their optimal values, he usually seeks merely a *better* solution than now in existence (p. 5, Preface).

A further blow to rationality comes from the manner in which information — the very foundation of rational choice — is treated in the planning process. As elsewhere in the bureaucracy, both planners and their superiors typically regard information as a political commodity rather than as a resource freely available to all takers. Partly this is a matter of protecting oneself against potential assault from enemies, rivals, or critics. Generalizing from his analysis of educational planning in Mexico, Benveniste (1970) concludes:

> If the planners reveal the content of the plan ahead of time, they may immediately be under pressure to alter it, to accommodate the needs of this or that group. It, therefore, seems preferable to present all interested parties with a fait accompli, because it will be that much more difficult to alter a coherent whole with an inherent logic of its own (p. 103).

Further, should planners release all of their exclusive information, they could easily lose whatever edge they hold over operating units in the bureaucracy. Benveniste again comments: "The initial advantage of planners is to have access to sources of information; this initial advantage will be lost and revert to the centers of power in the Ministry the moment the plan is discussed before the Minister approves it" (p. 103). Information is a closely guarded commodity in the exchanges between planners and other officials, and one of the few on which the planners have a prior claim.

> *Myth IV: A technically sound, clearly formulated, and internally coherent plan contains the essential ingredients for implementation. If the head is clear, the hands will follow.*

A good plan is one that can be translated into programs and assigned to the relevant operating agencies for implementation. An operating agency is best regarded as a single hierarchical structure in which authority is exercised on a top-down, chain-of-command basis. Thus if a plan for rural development is presented to the Minister of Agriculture and is approved, execution will follow when it is passed along to the relevant directors, and so on down the line. At subministerial levels the bureaucracy operates more or less as a machine. Employees are given orders and carry them out with a minimum of slippage — a turn of the crank by the superior produces almost the same amount of movement in the same direction by the subordinate. With inefficient administrative machines of the type commonly found

in the developing countries there is more play in the system, but adequate compliance can be produced through training and closer supervision. In any event, it is not the task of the planner to worry about how to move the engines of implementation. Planning should be heaviest on the front end, lightest on the bureaucratic details of execution

Reality: *From the standpoint of implementation, the process of planning may be as important as the product. Technically sound and internally coherent plans may not be implemented at all, while less elegant plans with stronger backing may show a high rate of execution Much depends on human factors, for organizations do not function as machines*

The machine theory of implementation breaks down at several points. First, however elegant and logical the plan, there may simply be no central authority with enough power or motivation to carry it out. There may be a president, a prime minister, and a minister of education, but their formal powers may have little to do with their *de facto* power in program execution At the highest levels of government the president or prime minister may not want to or even be able to impose a plan on ministers who dislike it, perhaps because they were not consulted in its design The ministers face similar problems in their own organizations Many ministries operate as a collection of semi-autonomous fiefdoms The minister may have the title, but the director general may run things. The fact that ministers are in office no more than two or three years before they are dismissed or rotated does not help their power position. It would be very difficult, for example, for a planning unit in the Ministry of Education to convince the minister to undertake a major reform of primary education when the department involved was hostile to such changes Ministers often do not have much political capital when appointed, and gain little while in office, so that they are loath to squander what they have on jurisdictional squabbles among their subordinates

Implementation problems become even more complex when a plan requires action by several agencies responding to different authorities In Mexico, for example, the semi-autonomous Mexican School Construction Agency was a force to contend with in educational planning.

> While it is administered by its own board, and while the Minister of Education is chairman, the representative of the Minister of Finance is very influential on the board, which also includes representatives of the Federal District and of other financial agencies of the government . The Agency plays an important role in controlling the expansion of the school system . But the relations between the Agency and the Ministry are, nevertheless, complicated by the fact that the Agency is close to operating decisions which

> the Ministry wants to control completely. From time to time, the Agency may build schools in an area in response to some local political pressure without the agreement of the Ministry. Instructions may have come from above, bypassing the Ministry, or the chief of zone may have felt it was within his degrees of freedom to build a few more schools in an area where he happens to have a few friends. (Benveniste 1970 pp. 51-52).

Here not only can a collaborating agency stop or stall the implementation of plans developed by the Ministry of Education, but it can even start certain construction projects which the Ministry never contemplated. McGinn and Schiefelbein (1977) describe a similar pattern of relationships in Chile during the Frei regime

Second, even within a single implementing agency compliance with directives from "above" is far from guaranteed The machine theory of organizations is now so badly discredited in the literature on organizations that one wonders how it can continue to survive in the mindset of some planners and donor agencies Not only may unconvinced bureaucrats fail to comply with the injunctions of their superiors, but they may mount acts of covert or overt sabotage. For instance, one Latin American country recently launched a modest educational change program which included the development of a modern curriculum A sudden infusion of funds from an international donor allowed the curriculum unit to expand and its director to gain a certain prominence within the Ministry of Education New curricula were produced, but jealousies over the director's new-found visibility dampened the motivation of key units to incorporate the materials in the teaching program The attitude of some other directors seemed to be: "You had your time in the sun, now the curriculum can sit in the shade."

Should the Ministry make a determined effort to introduce the new materials into the schools, there would be further problems To begin with the teachers would resist the use of any textbooks, whatever curriculum they contain In this, as in many Latin countries, teachers are accustomed to give instruction from notes, which the students are expected to copy down Adopting a textbook would change this system and remove the psychological gratification of the lecture system. Moreover, even if the teachers were willing to change, many would find it difficult for very practical reasons Given the low salaries which they receive, a good percentage holds jobs in more than one school. As a result, they have barely enough time to give their classes under the existing system, let alone master a new text Finally, one of the purposes of the new curriculum was to promote a more participatory approach to learning and a greater mastery of concepts than of facts. But to achieve this end teachers would have to modify not only their sources of knowledge but their whole mode of relating to students. To expect that such changes would flow automatically from a curricular

reform, especially given the other constraints on the teachers' time and motivation, is totally unrealistic.

Third, the most common reason for poor implementation is not technical weaknesses in the plan but weakness of resolve among the implementers. While poorly conceived plans will usually not be carried out, plans which meet the highest standards of internal coherence may meet the same fate if they have been developed without sufficient regard for implementation. Factors such as consultation and participation in policy formulation will often carry more weight at the stage of execution than considerations of technical soundness Rolling plans which lack complete data and are otherwise technically imperfect, but which are based on extensive consultations with the likely implementers, may stand a much greater chance of producing action than polished documents generated by highly professional but isolated planners. Overloading the front end of planning may cause the entire development project to collapse

In short, it is a mistake to draw either a sharp line or no line at all between planning and program implementation To treat planners as a disembodied cerebrum mounted above the development effort is to consign them to irrelevance. To ask them to be the ultimate controllers of implementation is to cast them into the lion's den of bureaucratic politics. But between these poles of rational irrelevance and political over-control are intermediate positions which link planning and implementation in sensible ways To be able to discuss these positions, however, we must develop a new view of planning and implementation, one which relates these processes to each other and sets both squarely in the context of culture, social structure, bureaucracy, and politics. The approach which follows attempts to meet these specifications.

3.0 *The Transactional Approach*

The conceptual framework to be presented is built around the notion of *transactions* among individuals, groups, and organizations The central idea of the transactional approach is that human actions involve regular dealings with one or more environments The range of dealings is very broad, running from coercion and unilateral commands by superiors to complex exchanges among equals The effects of these transactions may also run in any direction Individuals may be influenced by their social environments or they may recast these environments in important ways Organizations may be significantly affected by rules, precedents, and pressures from national governments. The concept of transactions is deliberately left broad to allow for the host of interdependencies which may affect human actions

Applied to development planning and program implementation, the transactional approach has some immediate and perhaps novel implications:

— There is no ideal plan in the abstract, divorced from historical, political, and organizational contexts. If the plan is to be a vehicle for change rather than a stationary expression of preferences, it must be alert to specific situations and circumstances.

— The balance to be struck between the technical and the political aspects of planning will also hinge on the specific socio-historical and political environment. Contrary to academic views on rational planning, technical analysis may have to be cut short in the interests of constituency-building. Especially where formal planning is new, informational resources are meager and the political system is turbulent, planners may be well-advised to rely on informal goal setting and nonquantitative assessments based on conversations with knowledgeable individuals. There may be times, in fact, when projects are started with no formal plan at all. Both points were illustrated in the relationship of planning to general educational reforms in Chile and El Salvador (Schiefelbein and McGinn, Chapter 6; McGinn and Warwick 1979, Davis 1979). The reform programs began well before the comprehensive planning started

— How and where planning is carried out, the specific contents of the plan and the language of expression will affect its chances of implementation A transactional approach might lead to a very different style of planning and policy development than is now seen in many planning offices. For example, rather than treating implementation in a semimechanical fashion, planners might ask who will be important gatekeepers at what stages in the implementation process, and proceed to consult these individuals as part of planning Similarly, instead of assuming that sound technical language will be satisfactory for all concerned, the planners might well ask if the plan will be understood by both bureaucrats and politicians whose cooperation is essential. The plan language should not be open to distortion by potential adversaries.

— The degree of implementation will affect the future possibilities of planning. Planners who come up with policies that cannot be, or simply are not, carried out will develop a reputation for unrealism, or worse. If the educational planning office designs a program of sex education for the country's public schools, and if the mere mention of the idea touches off a storm in the press, the future options of these planners may be severely constrained The entire unit may be suspected of being out of touch with national reality or of acting in the interests of United States imperialism A high rate of implementation, on the other hand, may foster confidence in the planners and thereby open the way for more significant involvement in policy setting.

4.0 *A Conceptual Framework*

In applying the transactional perspective to planning and program

implementation it is helpful to begin with a framework specifying the key factors involved. The model presented here can serve as a kind of map which might be applied to a given situation. As is true with any map, not all parts are relevant to a particular task, while some parts will need greater detail than is provided. Nevertheless, the framework can be useful as a way of raising questions and suggesting hypotheses about critical transactions in planning and implementation. The key elements in the model are summarized in Figure 16.1

4.1 *Environment*

Central to the transactional approach is the concept of an environment for planning and implementation. The essential notion is that the formulation and execution of any plan will affect and be affected by forces external to the planning process. The greatest challenge in planning for implementation is to identify the individuals, groups, organizations, issues, and conditions that comprise the relevant environment for a given policy or program. The environment that is salient for one policy area, such as agriculture, may be quite different from that for another, such as education, though key figures and issues usually overlap. In identifying the set of actors and circumstances that are crucial for the policy of concern it is helpful to distinguish between the *remote* and the *proximate* environment.

4.1.1 *Remote Environment*

The remote environment consists of those physical, historical, sociocultural, ecological, and technological conditions with distant effects on planning and implementation. Planners and implementers do not have to become historians or anthropologists to be effective in their work, but they should have some sense of the background forces affecting development. Three overlapping aspects of the remote environment deserve particular attention: culture and social structures, political institutions, and formative historical experiences.

Culture embraces the norms, values, beliefs, and symbols guiding the choices made by members of the society and shaping their interactions with each other. Social structure refers to the patterns of interaction between or among individuals and groups in the society. A core precept of the transactional approach is that both planning and implementation must pay close attention to the social structural and cultural meaning and impact of any plan or program. For example, a recent educational reform in Peru attempted to introduce bilingual education (Spanish and Quechua or Aymara) in the early grades of the country's highland areas. While the planners seemed to think that this step would be good for the indigenous population, the parents thought otherwise: "Since social and economic power was associated with the language of the elite, they actually approved of teaching the children

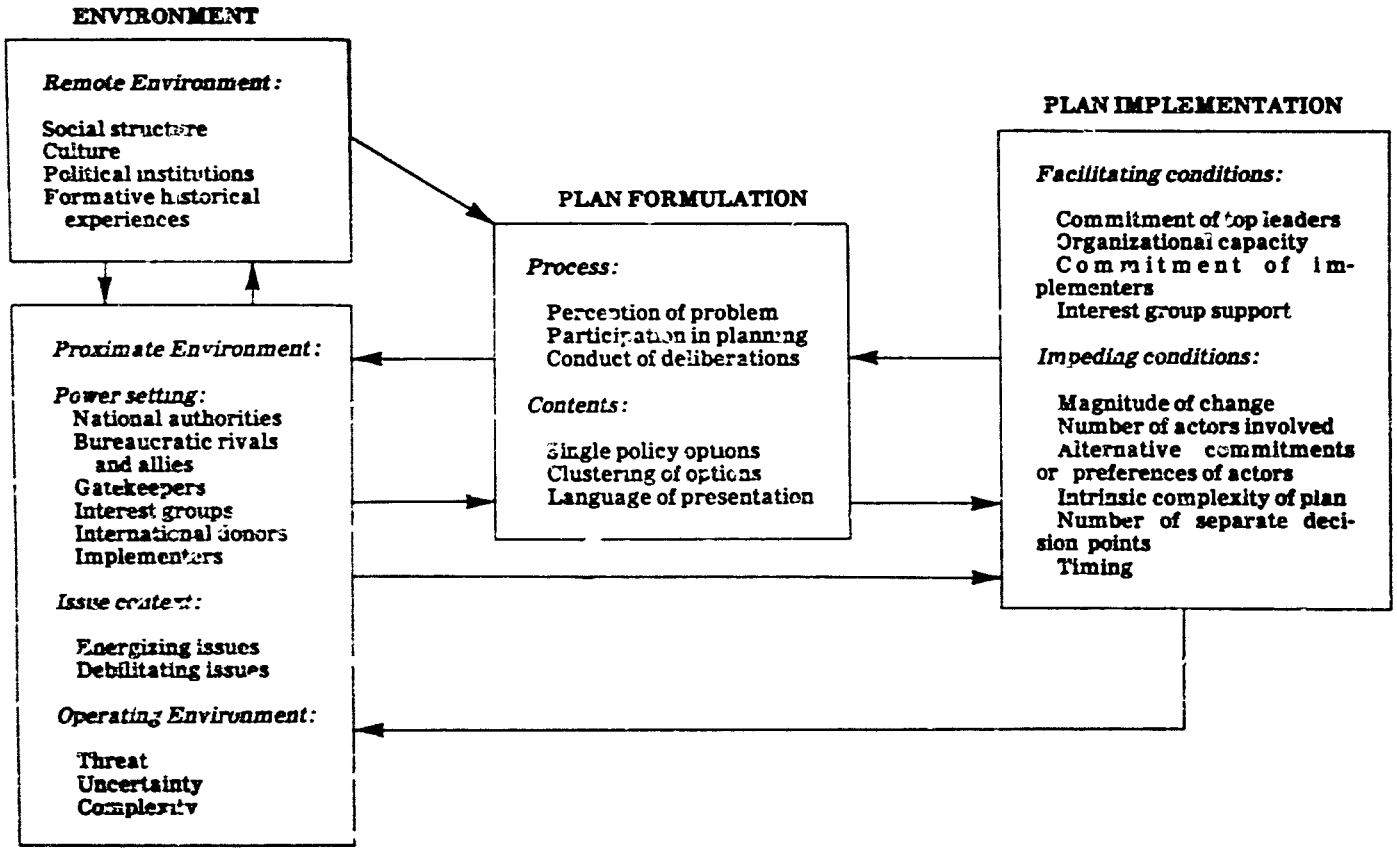

Figure 16.1
A Transactional Model of Planning and Implementation

in Spanish from the first day in school " (Cleaves 1976 p. 17). Here an aspect of the remote environment — cultural attitudes toward language — apparently became a significant barrier in implementing bilingual education.

Another crucial aspect of the remote environment is the structure of political institutions in the country. Although most of the readily identifiable actors will be part of the proximate environment, there may be others who lurk in the wings. The most obvious example in many countries is the military, who may hold no formal powers in planning but who influence its operations as a shadow elite.

A third part of the remote environment is the country or region's formative historical experiences. These are the trends and events of the past with a potential for carry-over to the present. Planners are not often historians, but they can still have a feeling for the historical conflicts, crises, issues, and incidents which can shape present perceptions about development programs. For example, in Kenya and much of Sub-Saharan Africa, the experience of slavery has left lingering suspicions of the genocidal intentions of the white, Western nations. These have recently surfaced in discussions of family planning programs, much to the surprise of Western population planners (Ndeti and Ndeti 1977). In Mexico almost any issue bearing on church-state relations must be treated gingerly, even though there is no open debate along those lines when the topic is first raised. The areas of development most clearly connected to this tender area are education and population control (Loñero 1977)

4.1.2 *Proximate Environment*

The proximate environment includes those actors, issues, and conditions with an immediate and/or direct influence on planning and implementation. The central question is: what counts in this policy, and for whom? Which individuals, groups, agencies, or other organizations can make a policy or program stop, start, and move along? What are the issues and conditions that will make a difference for either planning or implementation? In considering the proximate environment it is helpful to think of three interacting sub-parts: the power setting, the issue context, and the operating environment

4.1.3 *The Power Setting: Who Counts?*

The power setting is made up of individuals, groups, or organizations with the potential for immediate and/or direct influence on a given policy. Since each area of development policy will have a somewhat different power setting, one should be clear about the actors who count for the case at hand. For many spheres of development the key actors will include national authorities, bureaucratic allies and rivals, gatekeepers, national interest groups, and international donors.

(a) *National authorities.* The most obvious question to be raised about the power setting is who has the formal authority to control that domain of action. In some cases a prime barrier to implementation may be confusion over precisely which office or agency is responsible for carrying out a plan. Responsibility for a national fisheries policy, for example, may be spread across the ministries of agriculture, commerce, transport (harbors), defense (navy), and regional development authorities. As a result, even a well-conceived policy to regulate the fishing catch may have no bureaucratic home for its implementation. In Kenya the FAO-sponsored Programme on Better Family Living, a project which combined population measures with other kinds of development activities, foundered because of unclear authority. As a practical matter, planners would be well-advised to take up the question of responsibility as part of policy formulation. In the transactional approach, which places heavy emphasis on identifying key figures in implementation, this question would arise very quickly.

Several categories of national authorities are likely to be involved in approving and implementing most development plans. The most obvious is the chief executive, such as the president, the prime minister, or the head of a military junta. Without support from the top, planning on vital issues, such as educational or land reform, will quickly evaporate, and even with this support it may not go very far. Also important are the minister(s) with direct authority in the area of concern, the parliament (if any), the minister of finance, whose cooperation is usually needed in obligating funds, and perhaps the national planning body. From a transactional standpoint the critical task is to identify those authorities with the power to intervene at all crucial stages of planning and implementation, and to involve them in appropriate ways. For example, members of parliament representing a country's coffee growers may play a vital role in any policy measure affecting the employment or income of their constituencies, even if the parliament's role is nominal at best. The finance ministry should also not be overlooked, as it may be, for without its blessing no plan requiring new expenditures will get more than a few meters from the drawing board (Caiden and Wildavsky 1974 p. 102).

(b) *Bureaucratic rivals and allies.* It is usually safe to assume that any consequential development policy will touch the interests of government agencies other than those directly charged with its implementation. Typical results are the rivalries which impede implementation, the alliances which facilitate it, or both. The rival units will usually include those that feel they should have major jurisdiction over the policy, that they are more deserving of the funds than the actual recipients, or that they should have been consulted in the program's development. Their opposition, competition, or inaction at significant points in the implementation process may result in conflicts, delays, or even total paralysis. The national population program in the Philippines, which involves numerous agencies vying for limited

funds, provides a classic example of bureaucratic rivalry and its consequences. Similar rivalries hamper the work of the government's coordinating body, the Commission on Population, which has experienced a high turnover of directors in recent years.

At the same time, planners may find bureaucratic allies even for controversial policies. Employment generation schemes proposed by the national planning office, for example, may win backing from the commerce ministry, which sees possibilities for new enterprises, from the ministry of labor, which favors expanded employment opportunities, and from the ministry of education, which might participate in new training ventures.

(c) *Gatekeepers* are those agents on whom a given policy or program depends for approval or action. In forecasting the chances for implementation it is necessary to identify probable gatekeepers not only in the early stages but through the entire cycle of execution. While some are elusive and hold no identifiable office, most can usually be brought into the open by asking four questions:

First, from which individuals or organizations must the implementers obtain *formal concurrence* before moving ahead? In building new schools, the education ministry may need approval from the ministry of public works or a special school construction agency. Similarly, a rural development program devised by the ministry of agriculture may need *the explicit benediction* of the provincial government before it can move into action.

Second, which groups or organizations are involved in the *joint administration* of a program? In Egypt the national family planning program is in many respects a joint venture involving the Executive Family Planning Board, the Ministry of Health, and the Ministry of Social Affairs. The result, according to one report (Gadalla, Mehanna, and Tennant 1977) is a confusion in the lines of responsibility, difficulties in supervision, competition, and duplication of activities. While such problems are quite common, some could be eliminated or reduced through advance attention to the transactional context.

Third, is the policy dependent on some outside body for *external coordination*? A common actor in this role is the national development authority or planning agency, which is nominally responsible for integrating the work of all sectoral planning units.

Fourth, whatever the formal structure of government, will the success of the program depend on *informal clearance* from individuals or groups? In some African societies, ethnic group leaders have no formal authority over programs devised for their areas, but planners would be mindless to by-pass them in planning for implementation. Such purveyors of *informal blessings* are usually linked to one of the interest groups to be mentioned next.

(d) *Interest groups*. In most countries effective policy formulation and implementation will be closely tied to the society's interest groups. Contrary to a politically neutral vision of planning, the transactional

approach advocates specific and sustained attention to actors such as political parties, ethnic groups, unions, marketing associations, religious organizations, and the media. The identification of key interest groups sometimes requires considerable skill and subtlety, for the concerned parties may be working behind the scenes or may not appear until the later stages of implementation. But in many policy areas the most crucial actors are there for all to see. In educational planning, for example, they would usually include teachers and teachers' unions, political parties, universities and university student organizations and, though rarely organized, parents.

The educational reforms launched in Chile and El Salvador in the 1960's underscore the pivotal role of teachers and their unions. Teachers and their allies in the Ministry of Education usually keep a wary eye on reform plans and are not slow to react if they disapprove of what they see. In El Salvador the sweeping changes introduced by the Minister of Education, provoked the teachers' union (ANDES) into a 58-day strike in 1968. The strike was fierce and led to violence, but the minister waited and the strike was broken. In Chile the teachers were less concerned about the contents and processes of the reforms than about the more mundane question of wages. Still, the climate of change fostered by the reform created an ideal opening for pressing their demands. The result was two protracted strikes and increasing militancy by the unions. But in good part, because of effective planning, the conflicts did not destroy or debilitate the substance of the reforms. The teachers continued to work with curriculum planning groups and to try out new materials. "It was as though by this time the Reform was considered as a product of everyone's efforts, and not a creation of the Christian Democratic government" (McGinn and Schiefelbein 1977 p. 63).

(e) *International donors.* Foreign assistance agencies will occupy a prominent place in the power setting of many development programs. Organizations such as the World Bank, the U.S. Agency for International Development (AID), the United Nations Development Programme, regional development banks, and private donors have an enormous impact on the issues addressed in development and on the organizational structures for dealing with them. There is now a substantial literature on the operation of donor agencies, although few studies have traced out the full range of their impact on planning and program implementation (Tendler 1975; Krassowski 1968; Cerych 1967; Montgomery 1962; Snyder 1979). This literature and the author's own research suggest several broad hypotheses about donor impacts.

First, donors can affect the creation, structure, and content of planning operations. By making funds available for planning, insisting on planning as a precondition for loans and grants, or otherwise communicating their favorable disposition toward planning, donors may influence (a) decisions to create a planning unit (Wynia 1972); (b) the organizational location and structure of the unit; (c) the operating

assumptions about the unit's work, such as underlying ideas about the problem to be solved (Snyder 1979); and (d) the priorities and strategies followed in planning, such as sector analysis, or sector assessment (Daniere 1979).

Second, donors affect the total context of planning through their influence on development priorities and programs. International assistance agencies often shape the environment for planning by making funds available for some types of activities and not for others, by the conditions and requirements attached to the spending of funds, by informal pressures for certain kinds of results, and in other ways. These influences are seen most clearly in three areas: (a) overall development priorities, such as capital development strategies vs. emphasis on the rural poor; (b) priorities within sectors, such as a heavy concentration on instructional television within the education sector; and (c) project design, including specific components, timing, and organizational structure.

Third, donors may exert a strong influence on program implementation. AID, for example, commonly appoints a United States-based contractor to advise and monitor the project at all stages. The contractor, in turn, usually hires technicians and other advisors to work with local counterparts. To complicate matters, either AID/Washington or AID members of the country mission may take an active, though sometimes extra-official, part in screening the advisors chosen, in determining the length and timing of their visits, and in approving other aspects of the contractor's work Mission representatives, such as the Mission Director or Education Officer, may also develop local contacts which can support, neutralize, or even undercut the contractor's work At later stages the donor agency may also press for certain kinds of results in program implementation, such as the preparation and diffusion of certain kinds of books or educational TV programs, or the conduct and publication of educational research studies (Snyder 1979). Anyone familiar with foreign assistance knows that these are common issues with donors in a complex project. The question here is not whether these interventions are admirable or deplorable in themselves, but whether they can be anticipated and effectively dealt with in planning and program implementation

(f) *Implementers.* Finally some mention should be made of a group that is often overlooked by planners and project designers: those who will be directly charged with executing a policy or program. Once a program is under way the implementers are not, properly speaking, part of the power setting, for they are within the organization itself. But during the planning stage it would be eminently sensible to view key implementers much as one would regard crucial interest-group representatives — as persons to be consulted and involved in the project's design so far as possible. There is now clear evidence from several sectors that a failure to do so may not only generate resentment about a lack of participation, it may mean losing vital design in-

formation. At the simplest level these administrators may point out that the program as conceived is bureaucratically unworkable. They may also indicate, directly or indirectly, whether they believe in the program in general and in the activities it will sponsor, such as sterilization and abortion in a family planning program. In Egypt, for example, the government initiated a family planning program almost overnight without consulting the personnel expected to carry it out. A recent study of this effort produced this finding:

> When questioned in depth regarding their analysis of family planning efforts in Egypt, the majority of the implementers interviewed expressed dissatisfaction with the present national family planning program. They tended to focus their attention on the numerous difficulties and constraints involved in the implementation of the program Complaints varied from a criticism of constraints operating within the program itself to a discussion of problems existing on the community level inhibiting the facilitation of family planning objectives even in the absence of program constraints (Gadalla, Mehanna, and Tennant 1978).

Had these implementers been consulted they could easily have pointed out some of the straightforward difficulties that did, in fact, arise in the program, such as confusing lines of authority. Their own motivation to take this program seriously might also have increased.

4.1.3 *The Issue Context: What Perceptions Might Be Aroused?*

In evaluating possibilities for the initial acceptance of a plan and its subsequent implementation, decision-makers must also pay heed to the perceptions likely to be generated by the formulation, the content, or the language of a policy. In making such assessments it is useful to consider the issue context for a given policy — the points of discussion, debate, or controversy in the society. Some issues will be energizing because they serve to arouse interest or mobilize support for the policy. For example, the 1969 agrarian reform program in Peru was strongly energized by its connection to the larger objectives of the military government. Basically, President Velasco and his military associates saw the land reform as the most effective way of breaking the back of the landed oligarchy and thereby consolidating their own political position. As Cleaves (1976) observes,

> The reform thus had the effect of establishing the regime's authority throughout the society and help[ed] gain compliance for other initiatives. Strong-armed measures against recalcitrant teachers or university students . . . could not possibly have had the same positive effect in priming the society for inclusive policies in the mining, financial, and industrial sectors (pp. 34-35)

Issues may also be debilitating if they devitalize or contaminate the

policies with which they become associated. A Latin American population education program could be crippled if it became generally linked with perceived American imperialism or other unpopular images. In Kenya, comparable issues would include tribal rivalries and genocide of black peoples through family limitation. Significantly, some of these issues may lurk in the background and emerge only when a development program is under way. This possibility underscores the need for a rather thorough and subtle understanding of the country's remote environment, which may, without warning, become quite proximate.

4.1.5 *The Operating Environment: The Impact of Conditions*

The operating environment is the set of conditions — more or less impersonal circumstances — impinging on planning and implementation. Three conditions are especially important. The first is *threat*, which arises when the environment is perceived as a source of impending danger. The most clear cases of threat include imminent warfare with another country and armed insurrection within the country. Faced with the prospect of war, political leaders will typically fix their attention on questions of defense and will have little time for the niceties of development planning.

The degree of *uncertainty* or unpredictability in the political, economic, or social environment will also have pervasive effects on development programs. Political uncertainty, especially the threat of a military coup, may encourage chief executives to scramble their cabinets or juggle other appointments to ward off criticism and to prevent the formation of hostile cliques. This strategy may make great sense from the standpoint of survival, but it does pose problems for continuity in planning and implementation. Economic uncertainty, such as that produced by rapid inflation and balance-of-payments deficits, may also lead to short-term crisis management in preference to long-range planning. In general, while uncertainty can sometimes be a motivating force for development, more often it will result in caution, incrementalism, and personnel turnover.

Finally, planning and implementation must take account of environmental *complexity* — the number of elements in the policy environment and the intricacy of their connections. Complexity increases with the number of ministries or other organizational units involved in policy-making and implementation, the number of interest groups with some stake in the policy, the number of sensitive issues raised by the policy question, and the variety of rules and bureaucratic layers involved in execution. Over-all, the greater the complexity, the more formidable the planning required and the more difficult the implementation. Thus an integrated rural development program involving four ministries and five other government agencies will often be much more difficult to plan and carry out, though perhaps ultimately more beneficial, than more narrow programs run independently by these organizations.

4.2 *Plan Formulation*

A careful assessment of the environment, which need not require vast amounts of time, will often suggest far-reaching implications for both the process and the contents of development planning. Process and contents are connected in that different styles of plan formulation will yield different policy options and strategies for implementation, while initial statements and perceptions about the goals and contents of planning will affect the potential participants as well as the conduct of the deliberations. Perhaps the most basic requirement of the transactional approach is that planners and other decision makers identify the significant interests at stake in the particular policy domain and take steps to deal with these interests in formulating and implementing plans. Meeting this challenge demands not only intimate familiarity with the environment, but a high degree of self-reflection about the very processes being used in planning and implementation. Transactional planners, in other words, must not only plan with the environment in mind, but be aware of how their very actions touch that environment and how the resulting perceptions redound upon both planning and program implementation. Planning in this sense is inherently political.

4.2.1 *Process*

Three basic questions can be raised about the processes of plan formulation:

Is there a perceived problem which can be solved through planning? Is the situation ripe for planning, or will the plans formulated, however sound in their technical design, fall on barren ground? The critical transaction at this point is between the planner and the environmental demand for action. If there is no sense of concern about population growth, land reform, or educational change, or if such concerns are confined to politically insignificant groups, new policies may simply have no audience and stand no chance of implementation. Unless the planners are in a position to stir up the requisite concern, which they usually are not, they may do more harm than good for future development programs through premature planning. The transactional approach suggests, as a rule of thumb, that the formulation of plans should not run far ahead of societal concerns about the issues they address.

Who should participate in plan formulation? The specific participants will affect not only the options considered, chosen, and rejected, but also the perceived legitimacy of the resulting plan and its chances for implementation. In general, the more those involved in implementation have had a part in the planning process, and feel the resulting plan is their own, the more likely they are to support its implementation. Participation in itself may not mobilize them into strong

support, but it may at least defuse their opposition. By contrast, the more a plan is perceived to be the creation of a disconnected group of planners, a narrow elite, a special interest group, or some other unrepresentative body, the more likely it is to generate controversy or be scuttled before being implemented. Other effects of participation were discussed in Chapter 13.

There is a well-known dilemma in participation. On the one hand, when potential rivals, gatekeepers, or other interested parties are excluded from plan formulation, they can use their absence as *prima facie* grounds for opposition. If they are hostile and included, on the other hand, their presence provides them with a ready opportunity to stall or sabotage the entire effort. For this reason development planners often show marked ambivalence toward generalized pleas for participatory planning. They realize that, especially in a highly polarized or fragmented power setting, they can live neither with nor without participation.

Case studies of successful planning suggest, however, that there are alternatives falling between pure planning by planners and opening the doors to all of one's potential enemies It would be well worth the planner's effort to list, or have knowledgeable allies list, people to be consulted. The list would be organized along two dimensions: first, significance for implementation, second, initial favorability. The listing exercise will yield names of individuals whose cooperation will be crucial during implementation and who are at least neutral on the matter at hand. In sectoral planning these may well include the directors of the operating units in the same ministry or allied bureaus While such individuals may harbor some suspicions about planners and planning, they can often be won over by the very invitation to participate. To the extend that they see tangible evidence of their views reflected in the plans, they may even be converted to enthusiastic advocacy, but such conversions are infrequent The Office of Educational Planning created during the Frei regime in Chile, for example, followed a strategy of this sort in developing a curriculum reform. The planners began with a small but broad-based committee which set forth a broad outline for reform

> Once the basic ideas were laid out, however, membership on the Committee was expanded, as a series of task forces were created in each of the major curriculum areas . . . Each of the original members recruited teachers and professors of education to help in the development of curricula. The task force members were chosen on the basis of professional prestige and creativity . Contact with the Directorate of Primary Education was high
>
> Participants in the curriculum area task forces were encouraged to try out new materials and procedures as they developed. To make this possible, the Office of Planning solicited the collaboration of primary school principals. The curriculum people then worked directly with classroom

> teachers, from time to time bringing in groups of them to discuss ideas for new approaches in curriculum. The word quickly spread among teachers that the Ministry was really interested in their ideas (McGinn and Schiefelbein 1977 pp. 47-48).

A further sign of the positive effects of this collaboration was that during a subsequent teachers' strike, during which there were numerous criticisms of the education system, the teachers made no attacks on the curricular reforms.

How are the deliberations conducted? The Chilean example also underscores the importance of the procedures followed in planning. One key issue is the degree of their secrecy or openness When deliberations are conducted in secret and the policies are then simply announced, the feeling may arise that a plan has been sprung on the country without adequate opportunities for debate. In Guatemala, where an extension system of nonformal education was being planned in parallel to the regular school system, and in some cases duplicating the school system, there were strong feelings among the line directors in the Ministry of Education that the nonformal education plan had been cooked up in the national planning office without ministry participation and discussion (USAID/Harvard Project, Paper 81, Davis 1979). The plan was never implemented. Open deliberations, on the other hand, are not only time-consuming but may invite political sniping and organized counteroffensives by general or specific adversaries. Once again a practical alternative may be to have openness within the circles that count most, such as the teachers and principals in the Chilean reform, or ministry officials in Guatemala, but without access to all comers.

4.2.2 *Contents*

The substance of a plan will have an obvious bearing on its possibilities for implementation and impact. In thinking of a plan's contents the planner must scan the environment for two sets of signs: those relating to the plan's chances of being accepted merely as a plan; and those pointing farther ahead to the implementation process. Some planning options may draw pious nods of assent in the short term, but evaporate in the heat of squabbles about execution For others the hurdles of immediate acceptance may be greater than those of implementation The advance determination of these varying reactions lies at the center of transactional planning

Three questions can usefully be raised about the contents of any plan. First, how effective are the single policy options? Second, how will response to the plan be affected by the clustering of policies? And third, what reactions will follow from the language of presentation?

Single policy options. The field of project analysis suggests dozens of specific questions that might be applied to a given element of develop-

ment policy. The following are two others that are often ignored in technical appraisals. First, what is the policy's *credibility* to those who will be charged with implementation? Many plans set targets which are simply unattainable for institutional, financial, or other reasons. Population planners have been notorious for inflated estimates of the number of users of family planning services, and of the probable impact of such use on the birthrate. Other administrators, ranging from ministers of education to directors of fisheries programs, have been given to similar optimism. While elevated targets and optimistic projections may conceivably have a beneficial effect on public morale, over the long run they carry enormous costs for credibility among the implementers. These individuals and others in their power setting will either completely disregard the latest estimations, or make their own subjective discounts. The net result will often be not only poor information for decision making, but a general discrediting of the offices involved, with obvious implications for implementation.

Second, what is the policy's acceptability to elements who are central in the power setting? A planning office may decide that the most effective strategy for increasing rural employment is to raise the price of capital by altering the exchange rate. If, however, such changes would significantly increase the production costs for multinational corporations which import foreign technology and if such corporations have strong leverage with the president, this policy option may stand no chance of being adopted. In general, options which raise an assortment of red flags for politically influential groups may be stillborn, however compelling their economic logic.

Clustering. Beyond any single policy alternative, planners must consider the perceptions created by the entire package of which it is a part. A plan to provide credit to small businessmen in a Southeast Asian country might generate little controversy if it is open to all takers. If, on the other hand, it is billed as an effort to promote indigenous (i.e., non-Chinese) entrepreneurship, the reactions from the non-indigenous groups might be quite strong. Sometimes association with a broader set of changes will lend energy to a policy that it would not have if it stood alone. Cleaves has argued that a major factor favoring the 1969 agrarian reform in Peru was the interlinking structure of its various elements. Set in a broader context of national reform and containing policy alternatives with a high spread effect from one to the other, the reform package had to be taken seriously by friend and foe. Even opposition attention helped.

> The result was that in the agriculture ministry policymakers could obtain a multiplier effect from the investment of relatively few resources. By touching the right string, they could have the whole orchestra playing. When the music was out of tune, they wrote a slight modification into the score. It took relatively few political resources to keep the agrarian reform on track once begun. (Cleaves 1976 p. 36)

But the same principle can work in reverse. One rotten apple in the policy barrel may have less wholesome spread effects.

Language of presentation. Finally, reactions to a plan will hinge on the language in which it is couched. In Catholic Colombia a population education program designed to promote responsible parenthood set off more harmonious vibrations than if it had been directed at population control. An educational plan including classes on family life education might raise fewer hackles than the same option identified as sex education. While it may be both unethical and counterproductive to seek a silky euphemism for every prickly policy option, there are cases in which palatable language neither distorts truth nor camouflages intended actions. Education uses many euphemisms, such as special education, social promotion, enrichment.

The Mexican government's handling of the language for its population policy provides one of the clearest cases on record of the search for linguistic legitimation. Leñero (1976) shows how policy-makers made a deliberate effort to draft the 1973 Population Law in terms that would appeal to or at least mollify all of the concerned interest groups. To ward off the usual charges from the socialist wing, the law stated that population policy was intended to pursue development rather than substitute for it. For critics who might charge that birth control programs were an American import, the government could say that its policy was an expression of sovereign self determination. To satisfy cultural nationalists as well as potential Catholic critics, the law proclaimed an absolute respect for human rights and national cultural values. Seemingly to draw support from feminist groups, the law proclaimed equality of the sexes as one of its formal objectives. The language, in short, tried to convey the impression that Mexican population policy was purely Mexican in origin, reflected Mexican values and traditions, was designed to address pressing national problems, and would serve all sectors and interests in the society. The carefully tailored language, together with adroit publicity moves, seems to have had a favorable impact on public reaction to the law.

4.3 *Plan Implementation*

The transactional perspective applied to policy formulation is equally salient for plan implementation. In fact, as already noted, the chances for implementation will depend in good measure on the processes and contents of planning. Plans which ignore crucial actors in the power setting, which are not perceived as credible or palatable, which touch off conflicts or resentments among those closest to them and which are presented in insensitive or inflammatory language, will be hobbled at the starting gate. Those that have been developed with the participation of those to be affected, that are tailored to the needs and interests of target populations, that have strong political and bureaucratic support, and that are realistic in their organizational and

management structure, will have at least some chance in the implementation race.

The foremost challenge in planning for implementation is to identify and deal with the forces promoting or preventing the program's movement. From a transactional standpoint a plan, considered in itself, is best regarded as an object with no velocity. Like a stone, it will remain at rest unless some force acts on it from the outside. It will never go into motion simply because of its own logic, elegance, or wisdom, though these qualities may increase its momentum once other forces induce movement. The task, then, is to activate those forces which will set the plan moving in the desired direction, and to counteract those forces which would stop it from moving at all or cause it to move in undesired directions. Here the mechanical analogy ends, for the essence of transaction is to relate to and deal with key elements in the environment. In most development programs this is much more of a process of consultation, negotiation, and exchange than of corking and uncorking bottled forces. The following scheme suggests some specific possibilities for applying this transactional approach to implementation.

4.3.1 *Facilitating Conditions*

If the plan, as a plan, is assumed to be a mass at rest, and the aim is to have it develop sufficient momentum to be implemented, one must ask about the potential sources of velocity. Principal among these are the commitment of the political leaders involved, the organizational capacity of the implementing agencies, the commitment of the implementers, and interest-group support. If none of these can make it go, chances are that it will remain at rest a long time.

Commitment of political leaders. Significantly, development plans such as those proposing educational or agrarian reforms will usually not be carried out unless they are backed by the political leadership of the country. In practice, commitment means a willingness on the part of these leaders to provide the positive weight of their authority to implementation and to refrain from actions which would undercut the plan. A perfect example is seen in the educational reforms undertaken by El Salvador in 1967. The Minister of Education, and the main protagonist of the reforms, knew full well that they would be controversial and that they could be completed only with the backing of the President. Fortunately for the Minister, the President was willing to stand behind this effort, even when teacher strikes almost brought down the government. The President was convinced that expanded education was essential to Salvador's development, and that it should be the centerpiece of his administration. As one of the Minister's closest advisors put it in an interview with this author,

> The President was not a very dominating person, and was

> somewhat shy with the ministers, most of whom were mediocre. The Minister was not shy, and was able to move ahead partly because of his personal connection with the President, but also because of the President's personal conviction about education.

The Minister made the following comment in an interview:

> We knew that if we didn't have the changes we would have trouble in the future. Salvador had nothing but people. Everything is people. The President told me later that members of the Board of the official party came to him and said: "If you keep that Minister on we are not responsible for losing the elections." The President said to them: "I have confidence in him." The President never tried to stop me. He told me this only after leaving office. (McGinn and Warwick, USAID/Harvard Project; Paper 75, 1979, p. 8).

In the opinion of everyone consulted, the reforms simply would not have been installed without the support of the President. And, as this example illustrates, top-level commitment is doubly necessary when the proposed changes readily feed into national, as distinct from ministerial, politics.

Organizational capacity. Success in implementation will further rest on the capacity of the implementing agencies to carry out the necessary tasks. One prerequisite, noted earlier, is clarity about who precisely is to carry out which aspects of a plan. Ambiguity on this front may easily produce inaction, delays, jurisdictional conflicts, or totally fragmented action. A lack of small personal conveniences may be the horseshoe nails for want of which more than one development program has fallen. While sharply drawn organization charts and the managerial philosophy behind them can also act as barriers to development, uncertainty about who is to do what will often produce temporizing or bureaucratic stumbling.

For any given implementing organization, capacity has three central ingredients. The first is the *technical skill* to carry out the necessary action. An agency which is asked to prepare a manual on how to use chemical fertilizers, and which has had no experience with either manuals or fertilizers, may require a long starting time. The second ingredient is the *ability to relate well to other organizations* operating in the same policy arena. Agencies with a reputation for bureaucratic expansionism, inter-ministerial intrigue, or general untrustworthiness will not be well placed to handle implementation requiring interagency cooperation. The third element is the *presence of or the willingness to develop appropriate routines.* Recent organization theory, built upon the work of March and Simon (1958), places strong emphasis on the notion of standardized ways of solving problems and handling requests. Most implementing agencies will have developed certain basic routines for accomplishing their normal work,

and will probably have the type of personnel who adapt well to such routines. For example, an agency whose main tasks are interpreting rules and auditing the work of other units is unlikely to possess either the operating procedures or the mentality for innovative action in the field. There are two practical questions. First, does the agency now have the organizational routines and the corresponding mindset to carry out the program? Second, if it does not, can it modify its routines quickly enough to get the necessary work done? If the answers to both questions are negative, the planners might better look elsewhere.

The commitment of implementers. One of the most common mistakes in rationalist planning is to assume that if the generals are ready to move, the captains and troops will follow. We now have striking evidence that staff willingness to carry out approved policies is variable and subject to bureaucratic, cultural, and psychological influences. It is also clear that such commitment does not remain fixed over time. Initial holdouts can sometimes be brought on board, while starting enthusiasts may show reduced motivation when a program moves into its more difficult stages. As an aid to assessing staff commitment, it is useful to think of implementation at three organizational levels: (a) top-level authorities, such as the president or prime minister or the minister responsible for the program; (b) intermediate administrators, such as a bureau director or a district commissioner; and (c) field administrators, such as teachers, principals, doctors, and nurses in a health clinic, and agricultural extension workers. Experience with various development programs suggests the following hypothesis about commitment.

First, the commitment seen in the top echelons will be a predominant influence on lower levels, but especially on intermediate administrators If the prime minister, president, ministers, and other senior officials are lukewarm or hostile, a program is not likely to generate much momentum at mid-level. Intermediate administrators, being in close contact with the top, will usually be aware of ambivalences at that level. Since many will themselves want to move up they will be under strong pressure to behave in ways consistent with the attitudes perceived above them.

Second, field administrators who are in close contact with local communities will be especially sensitive to the attitudes, values, and beliefs at that level. Teachers or village-level health workers may care more about the opinions and feelings of local leaders than the orders administered by their superiors. If program implementation means that they must run the risk of antagonizing significant others in their environment, they will often find ways of balancing their need for a job with their desire for local esteem Moreoever, some field implementers may feel that their long-term career prospects lie outside the bureaucracy that employs them They may aspire to mobility through a political party, a tribal organization, or some other political channel. Faced with implementation orders that violate the expecta-

tions of actors crucial to their plans, they may decide that subversion or inaction is the most rational course.

Finally, the attitudes, values, beliefs, and expectations of the implementers themselves may strengthen or weaken commitment to implementation. A good part of the literature on the social psychology of organizations (Katz and Kahn 1967) boils down to a single question: How will individuals in the organization react as human beings rather than as employees? One might ask, for example, if the implementers really want to be implementing this program at all. In some programs implementers may have no objection to the organization or to the broad lines of action, but still take exception to specific activities.

Interest-group support. A final condition favoring implementation is the degree of support from critical interest groups. Planners must always ask if anyone is really interested in this policy and, if so, what is the intensity of their interest. Policy makers sometimes assume that the absence of negative or positive reactions means that the road is clear for implementation. This may be the case, especially with an inconsequential policy, but it may also mean that no one of importance really cares about the program, in which case political leaders may have trouble whipping up their own commitment. As a rule of thumb, unless a program is a technical change of no great import, if it has no strong advocates outside the planning unit, it will stand little chance of implementation, particularly if obstacles arise along the way.

4.3.2 *Impeding Conditions*

Several conditions will also work against the implementation of development plans. These are:

Magnitude of change. The greater the breadth and depth of a change to be accomplished through a program, the smaller the chances that it will be carried out. Breadth refers to the number of groups, decisions, and sectors involved, points that will be discussed shortly. Depth has to do with the intensity, profundity, or impact of the modifications proposed for any one area. The more a plan requires fundamental changes in social structures, in cultural norms, in political exchanges, or in other established behavior patterns, the greater the inertial forces and chances of recoil. In the recent Peruvian educational reform it was not coincidental that the element requiring the most superficial change — the formation of new education districts — was also the one that provoked the least resistance. When the government tried to modify entrenched patterns of social behavior, such as through schemes for community participation in decision making, the obstacles were much greater (Cleaves 1976). The deeper a change penetrates, the more likely it is to entail the abandonment of established routines: changes in rule books and reporting patterns; losses arising from "sunk costs", such as existing data forms; modifications of satisfying personal relationships or economic arrangements; and

alteration of environments that, however bad, are at least familiar and understood. Thus, from a transactional standpoint, planners would be well-advised to examine the deeper social, economic, political, and psychological costs of any proposed intervention.

Number of actors involved. The more numerous the individuals, organizations, interest groups, or other bodies involved in implementation, the smaller the chances of success. There are several reasons for this gloomy prediction. First, more actors mean more demands for communication and thus greater chances of delay. If a single bureau has sole responsibility for executing an integrated rural development program, if most of the implementers are under its direct jurisdiction, and if interest groups have no significant opportunities for direct intervention, the possibilities for action may be quite good. When, on the other hand, responsibility is shared across the ministries of agriculture, health, education, and public works, the sheer mechanics of communication can be formidable. Bureaucratic precedent may make it difficult for implementing officials from the ministry of health to resolve matters directly with their counterparts from the ministry of agriculture. Rules or custom may dictate that each official prepare a memorandum which is routed to the top of the home ministry, across to the top of the other, down to the counterpart, then back up, across, and down the same pathway. Many agencies, of course, find ways of circumventing these ladders, but policy makers at the top sometimes resist any dilution of their authority.

Second, the complexities of communication will often be aggravated by differences in perspective and divergencies in goals across the implementing organizations. Representatives of the different bureaus will think in different ways, use a different technical language, and press for different objectives. In an integrated family planning program doctors from the ministry of health may insist on a high quality of medical care for each person who attends the clinic. Administrators appointed by the government's population commission, perhaps with some nudging by donor agencies, may put greater stress on contraceptive distribution to homes and less on medical supervision. Social workers from the social affairs agency, may argue instead that educating people about the need for family planning is more important than either distribution or individual supervision. Difficulties in communication will be accentuated when normal professional biases are reinforced by promotion systems and other reward schemes favoring such proclivities.

Third, the problems mentioned will be multiplied when policy implementation involves not only overlapping bureaucracies but heterogeneous and warring interest groups. In these circumstances, which are common with plans proposing major changes, each interest group will have its allies in the participating bureaucracies, and perhaps elsewhere in the government, such as in the legislature or the military. Much to the chagrin of the planners, the parliament may

decide to hold special hearings on the plan, and the press may set out to expose its folly. As a general rule, when a plan becomes entangled in political scrimmages, senior officials are reluctant to press for rapid action out of fear that they may personally become targets of attack. The more heated the political climate surrounding a plan, the stronger the impulse within the bureaucracy to let it cool through inaction.

Alternative commitments or preferences. In some cases the collaborators, gatekeepers, or other participants may agree in principle with a plan but still default or hold back on implementation. Pressman and Wildavsky (1973) provide a lucid illustration of this phenomenon in their study of a poverty program in Oakland, California. They cite several reasons why participants might accept the ends of a plan but still not carry it out. First, participants may be in favor of the project but find it incompatible with other goals or more favored projects. Thus the ministry of finance may consider a proposal to build new health clinics highly desirable and perfectly feasible, but still decide that available funds should be used for other purposes, such as highways. Given limited funds, new expenditures for health would mean fewer resources for roads, so that there are incompatibilities. Second, even where there is no incompatibility, participants may simply prefer other projects. The ministry of health may not be in any way opposed to preventive health measures, but might still decide that it should stay with its traditional specialties of health care rather than venture into new areas. Third, participants may see no incompatibilities and not prefer an alternative program, but nonetheless have other projects with greater claims on their time and attention. The budgetary review office in the ministry of finance may be well-disposed in principle toward an irrigation project, but unwilling to review it ahead of the 180 other projects towards which it is also well-disposed. The result may be substantial delays in implementation. Fourth, participants may fully agree with and support the plan, but lack the power to overcome obstacles arising during implementation. The minister of education may be theoretically, as well as practically, behind a curriculum reform. However, when the new curriculum is finally developed, the teachers threaten to strike if it is introduced without a reduction in teaching hours and an increase in pay. For all of his good intentions the minister may decide that he simply does not have the political muscle to push the reforms through in the face of such stiff opposition. These examples suggest that a sharp distinction must be drawn between noble intentions about ends and the capacity, opportunity, and willingness to deliver the requisite means. Statements of good intentions in themselves are not an indicator of behavioral ability and willingness to overcome obstacles to implementation at critical junctures.

Intrinsic complexity. The greater the number of separate elements in a plan or program, and the more intricate their interconnections, the greater the difficulties in implementation. Several specific as-

pects of complexity will bear upon the implementation of a development plan. These include: (a) technical complexity, such as difficulties arising from engineering considerations; (b) fiscal and economic complexity, including problems arising from the linkage of a plan to accurate market forecasts or to reforms in tax policy; (c) supply complexity, especially the length and interdependency of the supply chain; (d) organizational complexity, such as the number of overlapping units and the levels of supervision needed to keep the plan on track; and (e) behavioral complexity, particularly the amount of change which implementation will require in long-standing attitudes and practices among the implementers. Some of these factors are quite familiar in project analysis, while others, particularly those dealing with behavioral and attitudinal change, are often slighted.

Roemer and Warwick (1978) illustrate the role of intrinsic complexity in the fishing sector. Faced with a very real danger of over-fishing, a government considers two possible strategies for reducing the fishing catch. The first involves banning all fishing in its waters during specified seasons and enforcing the ban with naval patrols. The intrinsic complexity of this strategy is low, for the behavioral change required is simple (no fishing) and the enforcement straightforward if patrol ships are available. This first method would undoubtedly create many other social, economic, and political problems, but these would not arise from intrinsic complexity. The second approach is to combine restrictions in fishing with compensatory programs of employment-generation for the displaced fishermen Complexity would rise dramatically because of the inherent uncertainties involved in creating jobs and having them accepted, difficulties of establishing the credibility of the government's intentions in this area, the loss of cultural satisfactions, such as the informal marketplace that happens when a boat comes in, and the likelihood of strong opposition from local and national leaders In general, fisheries policies showing low intrinsic complexity generate highly complex externalties, while those with high intrinsic complexit, are usually designed precisely to minimize such externalties

Number of decision points. The greater the number of decisions and clearance points in the implementation process, the smaller the chances of success There are two paramount reasons First, the greater the number of choice points, the greater the possibilities of delay. Even without conflict, sabotage, opposition, or other forms of noncooperation, each decision or clearance will require consultation, which takes time Second, the longer the string of choice points, the greater the likelihood of intentional delays by hostile or unconvinced actors in the power setting

As a rough guide for assessing the over-all chances and probable timing of implementation, planners should calculate, first, the number of known or probable decision and clearance points along the projected implementation chain, and, second, the chances of reaching agree-

ment at each point. Assuming independence of events, even with only five clearances and a probability of agreement as high as 80% at each stage, the overall chances of success would be less than one in three; with ten clearances, the figure would drop to one in ten. Pressman and Wildavsky went through such culculations for the Oakland poverty program. They concluded, in retrospect, that with 70 clearances and a probability of agreement of 80%, the chances of success for that undertaking were less than one in a million!

Timing. Finally, the greater the length of time required for implementing a plan, the smaller its chances of success. There are great advantages to changes which can be accomplished quickly, though swift action may lead to false impressions about the depth and permanence of change. A long time-span, by contrast, will often produce several impediments to implementation.

For one, the longer the time required, the greater the likelihood of a change in political leadership. Ironically, the very conditions which produced strong support for a plan in one regime may lead to its undoing in the next. Anxious to discredit their predecessors or desirous of obtaining new supporters for their own regime, the new leaders may jettison programs which alienated significant interest groups in the country. In general, the more a plan symbolizes the distinctive values or liabilities of a predecessor regime, and the more these values or liabilities come under attack in the new government, the greater the chances that the program will be shelved.

In other cases the problem is not that the incoming government is hostile to a program, but that it has other priorities which excite greater interest. In still other instances the government may decide that there is nothing intrinsically wrong with the program, but that it should be shunted aside because it does not provide enough instant visibility for the leadership.

Even if the same leaders stay in place, the passage of time may weaken the original commitment to the program. The crisis that gave rise to a housing program, for example, may have passed or been suppressed, so that there is no longer a sense of political urgency. Then there may be new crises, such as demands for land reform from organized peasant groups, which deflect attention from older priorities. Another casualty of time is the sense of organizational dynamism and flexibility found with new policies and programs. As the months and years pass, forceful leaders and organizational climbers may leave out of frustration with a sluggish bureaucracy. Pressures may also mount to have the program even further bureaucratized in order to ward off the inevitable criticisms about irregularities. Action may thus be slowed so that it can be done in the right way. Moreover, enthusiastic supporters at the program's baptism may conclude that their interests do not warrant commitment through its childhood and adolescence. Declining allegiance from interest groups, together with mounting criticism for inefficiency and a

lack of results, will further dampen the ardor of top-level leaders. Pressman and Wildavsky (1973) again provide a penetrating analysis of the anatomy of delay in the Oakland poverty program.

5.0 *Conclusion*

The danger with the predictive scheme just presented is that it can foster a sense of hopelessness about implementing any development program. Anyone who completes the suggested exercise will undoubtedly conclude that a complex project will be laden with difficulties, uncertainties, and delays. As a counterbalance to pessimism, it should be noted that the model contains a positive as well as negative side, and that there have, in fact, been many successfully planned and implemented development programs. Sometimes such success is the result of analytic foresight and shrewd intuitions, but in many cases it seems to have resulted from what Albert Hirschman has called the Principle of the Hiding Hand:

> What this principle suggests is that, far from seeking out and taking up challenges, people are apt to take on and plunge into new tasks because of the erroneously presumed *absence* of a challenge — because the task looks easier and more manageable than it will turn out to be. As a result, the Hiding Hand can help accelerate the rate at which men engage successfully in problem-solving: they take up problems *they think* they can solve, find them more difficult than expected, but then, being stuck with them, attack willy-nilly the unsuspected difficulties — and sometimes even succeed (Hirschman 1967 p 13).

Hirschman concedes, however, that the Hiding Hand is a crutch for decision makers who cannot face risks, and recommends that its use be as short as possible

The transactional approach suggests a middle road between paralytic pessimism and salvation by the Hiding Hand The strategy might be called binocular implementation forecasting — one eye on the positive resources which can be mobilized to support implementation, the other on the barriers and obstacles to action. If careful analysis shows that a plan is fraught with ambiguities and difficulties, but that the implementers are resourceful people who can command adequate political support, they should be given a chance. Whether through a hiding hand or a gun to the head, they may discover unanticipated allies, resources, and energies along the way. Moreover, this kind of implementation forecasting can produce its own corrective to despair if it makes a deliberate effort to project the favorable developments that at least *may* work in the project's interest. With these in mind the implementers and their supporters can make positive efforts to build constituencies and prevent roadblocks so that anticipated setbacks do not happen. In sum, while the transactional

approach is likely to uncover more pitfalls to implementation than conventional planning methods, it should also find compensating assets if a plan is at all viable.

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